

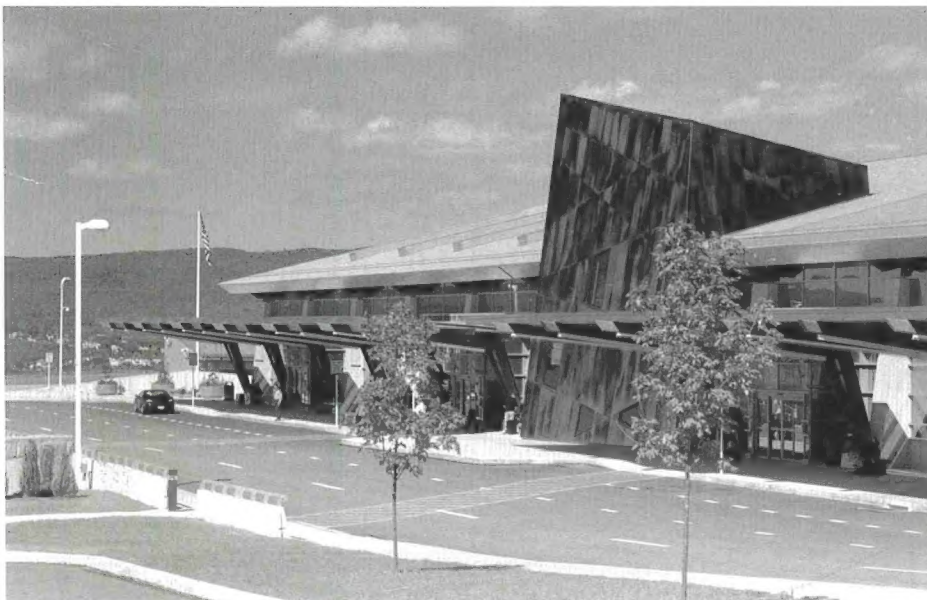
# ACRP

## REPORT 49

AIRPORT  
COOPERATIVE  
RESEARCH  
PROGRAM

### Collaborative Airport Capital Planning Handbook

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**ACRP REPORT 49**

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**Collaborative Airport  
Capital Planning Handbook**

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The need for ACRP was identified in *TRB Special Report 272: Airport Research Needs: Cooperative Solutions* in 2003, based on a study sponsored by the Federal Aviation Administration (FAA). The ACRP carries out applied research on problems that are shared by airport operating agencies and are not being adequately addressed by existing federal research programs. It is modeled after the successful National Cooperative Highway Research Program and Transit Cooperative Research Program. The ACRP undertakes research and other technical activities in a variety of airport subject areas, including design, construction, maintenance, operations, safety, security, policy, planning, human resources, and administration. The ACRP provides a forum where airport operators can cooperatively address common operational problems.

The ACRP was authorized in December 2003 as part of the Vision 100-Century of Aviation Reauthorization Act. The primary participants in the ACRP are (1) an independent governing board, the ACRP Oversight Committee (AOC), appointed by the Secretary of the U.S. Department of Transportation with representation from airport operating agencies, other stakeholders, and relevant industry organizations such as the Airports Council International-North America (ACI-NA), the American Association of Airport Executives (AAAE), the National Association of State Aviation Officials (NASAO), and the Air Transport Association (ATA) as vital links to the airport community; (2) the TRB as program manager and secretariat for the governing board; and (3) the FAA as program sponsor. In October 2005, the FAA executed a contract with the National Academies formally initiating the program.

The ACRP benefits from the cooperation and participation of airport professionals, air carriers, shippers, state and local government officials, equipment and service suppliers, other airport users, and research organizations. Each of these participants has different interests and responsibilities, and each is an integral part of this cooperative research effort.

Research problem statements for the ACRP are solicited periodically but may be submitted to the TRB by anyone at any time. It is the responsibility of the AOC to formulate the research program by identifying the highest priority projects and defining funding levels and expected products.

Once selected, each ACRP project is assigned to an expert panel, appointed by the TRB. Panels include experienced practitioners and research specialists; heavy emphasis is placed on including airport professionals, the intended users of the research products. The panels prepare project statements (requests for proposals), select contractors, and provide technical guidance and counsel throughout the life of the project. The process for developing research problem statements and selecting research agencies has been used by TRB in managing cooperative research programs since 1962. As in other TRB activities, ACRP project panels serve voluntarily without compensation.

Primary emphasis is placed on disseminating ACRP results to the intended end-users of the research: airport operating agencies, service providers, and suppliers. The ACRP produces a series of research reports for use by airport operators, local agencies, the FAA, and other interested parties, and industry associations may arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by airport-industry practitioners.

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## FOREWORD

By **Marci A. Greenberger**  
Staff Officer  
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*ACRP Report 49: Collaborative Airport Capital Planning Handbook* provides guidance to those in the airport community who have responsibility for, and stake in, developing, financing, managing, and overseeing an airport capital plan and the individual projects included in it. The handbook provides clear guidance on who should perform each task in the collaborative planning process. It also defines and describes the different ways in which we communicate to ensure effective exchanges between internal and external stakeholders.

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Airport capital improvements are dynamic and involve many elements and people. These elements pertain to the phases in which particular activities occur, be it planning, development, construction, or close out (and ultimately into operation). The individuals involved come from various departments, including planning, engineering, finance, operations, and maintenance—all with different priorities and responsibilities, not to mention external stakeholders such as the airlines, contractors, and the FAA.

Misunderstandings about roles and responsibilities in a collaborative airport planning process can have a domino effect on the accuracy and efficiency of sharing information with stakeholders on the status of a capital plan and its particular projects. HNTB Corporation was retained under ACRP Project 01-10 to identify best management practices in all phases of the development, implementation, and oversight of airport capital plans and offers a collaborative business process to facilitate constructive communication between internal and external stakeholders. The result of their efforts is *ACRP Report 49: Collaborative Airport Capital Planning Handbook*, which illustrates a process for communication and collaboration that can be adapted by any type or size of airport and can be individualized based on the number of employees and their functions and responsibilities. The handbook includes real-world examples of what airports have done in the past and how they achieved success.

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Laurie K. Cullen, A.A.E., served as the Principal Investigator and Andrea d'Amato, AICP, was the Project Manager. The other authors of this report were Nancy LaFarge, HNTB, Task Leader for Information Technology, and Hyun-A Park, Spy Pond Partners, Performance and Asset Management Advisor. The work was done under the joint supervision of Laurie Cullen and Andrea d'Amato at HNTB.

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# CONTENTS

<b>1</b>	<b>Chapter 1 Introduction</b>
1	Overview
4	What Is the CACP Process?
4	What Are the Benefits of a CACP Process?
5	What Is the Value of Collaborative Leadership?
5	Sustaining Collaboration Is the Challenge
5	How to Use the Handbook
<b>7</b>	<b>Chapter 2 Collaboration and Communication</b>
7	Why Collaborate?
8	Methods of Communication and Collaboration
12	Measuring Collaboration
12	Institutionalizing Collaboration
13	Indicators of Successful Collaboration
13	Additional Resources
<b>14</b>	<b>Chapter 3 The CACP Process</b>
14	Context of the CACP Process
17	The CACP Process
18	CACP Process Participants
<b>22</b>	<b>Chapter 4 The Foundation: Leadership</b>
24	The Foundation
25	Agency Policy
27	Organization
29	Resources
30	Management
31	Additional Resources
<b>32</b>	<b>Chapter 5 The Nuts and Bolts: Development and Implementation</b>
32	Development Phase
34	Step 1: ACP Policy
35	Step 2: Financial Planning and Management
37	Step 3: Capital Planning and Management
39	Step 4: Programming
42	Step 5: Airport Capital Plan
43	Implementation Phase
44	Step 1: Project Planning and Definition
48	Step 2: Design
50	Step 3: Construction
52	Step 4: Project Closeout and Evaluation
54	Step 5: Operation
56	Additional Resources

<b>57</b>	<b>Chapter 6 The Checks and Balances: Oversight</b>
57	Major Elements in Oversight
59	Performance Management
61	Evaluation
62	Meeting and Reporting
64	Motivation
65	Additional Resources
<b>66</b>	<b>Chapter 7 Tools and Technology</b>
66	Research Findings
66	Technology
72	Technology Decision Making
74	Key Elements to Successful Implementation of Enterprise Software
75	Additional Resources
<b>A-1</b>	<b>Appendix A Bibliography</b>
<b>B-1</b>	<b>Appendix B Glossary of Terms, Abbreviations and Acronyms</b>
<b>C-1</b>	<b>Appendix C Model Documents</b>
<b>D-1</b>	<b>Appendix D Sample Forms</b>



# Introduction

## Overview

Airports are facing unprecedented challenges as they struggle to manage competing demands from a diverse group of stakeholders, decreasing financial resources, crowded airspace, and higher expectations of a traveling public. Responding to the needs of new and financially unstable airlines as well as changing safety and security issues have overwhelmed many airports and their financial resources. To stay competitive in this industry, it is critical for airports to be on top of the changes and to maintain state-of-the-art facilities with the safety and comfort of the traveling public as a top priority. This translates into significant funds invested to maintain and improve facilities. The capital planning process provides one of the most effective mechanisms for organizations to plan and manage investments to get the best results for the available resources.

Airports usually enumerate capital investment requirements in a capital improvement plan or program composed of many individual projects that together form a plan to maintain and improve airport facilities. A typical capital plan outlines how the plan was developed, how its constituent projects will be funded, and how the financing plan will affect airport rates and charges. However, every airport has a different capital planning process based on its size, complexity and organization, and many have not formally documented the processes.

As demands for services increase while funding and staffing become more limited, many airports are so overwhelmed with resource constraints and organizational changes that the value and importance of collaborating on the airport capital planning process is not considered or abandoned. Currently, there is minimal guidance available on how to develop and implement an airport capital plan or how to measure the performance of key programs and projects, and there is little or no guidance on how to do either collaboratively. Airports continue to face challenges to establishing collaborative procedures, developing useful performance metrics and selecting appropriate and cost-effective information technology systems to develop and implement their capital plans. This Handbook provides the guidance airports have needed to address these challenges.

## Objective of the Collaborative Airport Capital Planning Process and the Handbook

The objective of this Handbook is to research best practices in airport capital planning and outline a process for developing, implementing and overseeing a Collaborative Airport Capital Planning (CACP) process. This Handbook provides a guide for the development, implementation and oversight components of the process, which details the basic goals, key actions, timing, key participants, methods for communicating and collaborating, recommended products and suggested results for a CACP process.

This Handbook is a guide, not a prescriptive “how to” manual, for a CACP process. It includes methods for effective communication and collaboration among the parties responsible and accountable for the airport capital plan (ACP). It demonstrates the importance of a carefully planned and managed capital planning process and the value of a CACP process for developing financially sound capital plans, predictive execution and delivery of projects, accountable performance and reliable results regardless of political, management or leadership changes. This Handbook provides illustrative examples of

- Best practices currently in use,
- Methods and processes for implementing and sustaining collaboration throughout the process,
- Performance metrics for achieving collaboration (qualitative and quantitative), and
- Sample guidance strategies and methods to assist managers in achieving a CACP process.

The CACP process has three components: 1) *The Foundation*: Leadership, 2) *The Nuts and Bolts*: Development and Implementation Phases of the CACP process; and 3) *Checks and Balances*: Oversight. This Handbook includes a step-by-step process that outlines the actions to be completed in each step, defines the roles and responsibilities of key participants, recommends methods for collaboration and communication and suggests products to get the results.

The process in this Handbook is designed for use by airports of different sizes, organizations, governing structures, and management characteristics, and will therefore be flexible in its application. Furthermore, this process is presented in detail in this Handbook. In an ideal world, all airports could do every step of this process in its entirety. However, smaller airports with fewer resources (funding and personnel) might start with a simplified version of the steps presented herein and build from there, and larger airports with hiring freezes and financial challenges might start with a streamlined version of the process to reduce the demand on resources.

Figure 1 illustrates how the number of steps and level of detail may change depending on the airport size, number of facilities and complexity of capital projects and programs. This process can be simplified or streamlined to fit any size airport. The mechanics of the Development and Implementation phases are more complex due to the technical nature of the actions executed in those phases, and that complexity increases with the size of the airport and number of facilities.

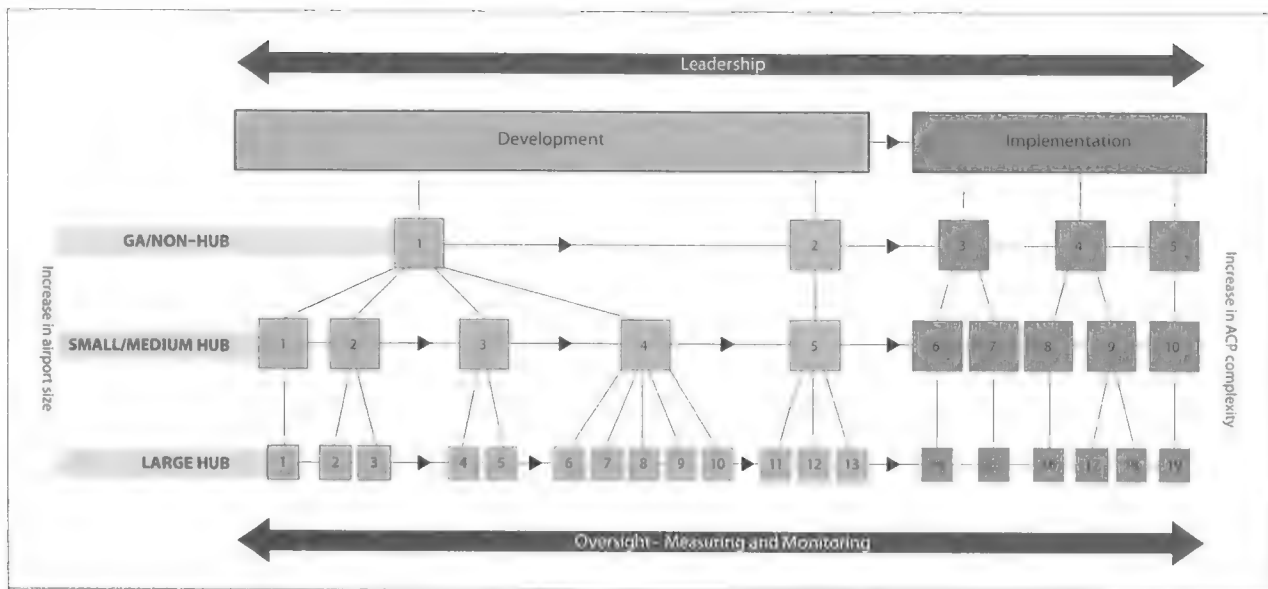
Regardless of the number of steps used in the Development and Implementation phases (see Chapter 5), it is always important to build a strong foundation to address the four areas of Leadership discussed in Chapter 4 (Agency Policy, Organization, Resources and Management) and to establish a system of Checks and Balances for executing the four elements of Oversight outlined in Chapter 6 (Performance Management, Evaluation, Meeting and Reporting and Motivation). These two components, Leadership and Oversight, are critical to establishing a collaborative organization that is flexible, transparent and accountable.

## Research

This Handbook is based on research that included a literature search and preliminary and detailed surveys. The following is a summary of the research effort.

The Literature Search. Hundreds of sources were examined, including documents and websites, from many industries, including

- Aviation;
- Transportation;
- Program and project management;
- Capital program and asset management systems and technology; and
- Housing, healthcare, and secondary and higher education.



Leadership	Development	GA/Non-Hub	Small/Medium Hub	Large Hub	Oversight
		1. ACP Policy, Planning and Programming	1. ACP Policy	1. Translate Mission and Goals	
			2. Financial Planning	2. Targets, Revenue and Operating Expenses	
				3. Capital Plan Revisions	
			3. Capital Planning	4. Identify Needs	
				5. Develop ACP Project Request List	
			4. Programming	6. Prioritize Projects	
				7. Identify Funding Sources	
				8. Analyze ACP Project Request List	
				9. Financial Analysis of ACP	
				10. Trade-Off Analysis	
		2. Draft ACP	5. Draft ACP	11. Draft ACP	
				12. Vet with Stakeholders	
				13. Final ACP Approval	
Implementation		3. Planning and Design	6. Project Planning and Definition	14. Planning Studies and Project Definition	
			7. Design	15. Design	
		4. Construction, Closeout and Evaluation	8. Construction	16. Construction	
			9. Project Closeout and Evaluation	17. Project Closeout	
				18. Project Evaluation	
		5. Operation	10. Operation	19. Operation	

Figure 1. The CACP process and airport diversity.

The research focused on

- Capital planning and programming,
- Project and program management,
- Information technology (IT),
- Collaborative business process,
- Communication and collaboration practices,
- Asset management, and
- Performance metrics and measurement.

**The Preliminary Survey:** A brief survey was sent by email to 152 agencies. Eighty-three agencies representing 94 airports completed surveys, which was a 62% response rate. The survey covered a diverse and representative sample of airports in terms of size, geography/FAA region, and governing structure.

**The Detailed Survey:** Detailed, in-person surveys were conducted with nine agencies selected from the preliminary survey respondents as well as with nonairport agencies selected from the literature search. The purpose of this survey was to gather more detailed information on best practices and lessons learned on capital planning processes. Nine agencies were interviewed representing 19 airports (11 large-hub, one medium-hub, one small-hub, one non-hub and five GA airports), along with two state departments of transportation, one county transportation agency and one city transportation agency.

## **What Is the CACP Process?**

The CACP process is a process to develop, implement and oversee ACPs collaboratively. It is designed for Executive Leaders, their Leadership Team, Capital Management Team (CMT) and Internal Stakeholders to create, foster, and nurture an environment in which information is shared and used to institutionalize and sustain a collaborative process for each step in developing and executing an ACP.

## **What Are the Benefits of a CACP Process?**

In today's climate of constrained financial resources and shifting political priorities, it is necessary to

- Be flexible,
- Have a clear understanding of needs,
- Establish realistic measures and anticipate realistic results,
- Be accountable for financial and operational performance, and
- Be transparent in development and management of the capital plan and the delivery of those services.

Sound capital planning and development through the CACP process as described in this Handbook provides a foundation for transparent, accountable, and flexible financial management because

- Good infrastructure management and investment are needed to ensure the basic safety, security and operational efficiency of an airport.
- Carefully planned infrastructure investment can maximize the economic potential of an airport.



- Prudent management of facilities and investments can reduce future operating costs, help avoid higher replacement costs, and minimize unexpected infrastructure crises.
- A more systematic approach to multi-year financial and capital planning can benefit the airport by improving the basis for intergovernmental cooperation and decision making by increasing opportunities for lower financing costs and by improving access to state and federal aid programs.
- A sound management structure with accountable and transparent processes and results increases the confidence of funding entities, stakeholders and the traveling public.
- Well-trained and motivated staff will have ownership in the process, pride in their products and recognition in the community.
- The agency will become an innovative leader in the industry and the community.

## **What Is the Value of Collaborative Leadership?**

For collaboration to be effective, the Executive Leader must set the direction, set the tone, and lead by example. It is equally important for the Executive Leader to provide the resources for, and to create an expectation of, collaboration among the departments. The managers and task leaders in each department are leaders within their own departments and share the responsibility of managing resources and collaborating with each other. An Executive Leader's commitment to collaboration in partnership with the department managers and leaders can provide the following in an organization:

- An open and honest environment where accurate data is maintained, reliable reports are generated, information and resources are shared, and work toward creative solutions occurs on a regular basis.
- A team committed to collaboration because it enjoys working together to innovate, find the best solution and take pride in the work and outcomes.
- A team that understands that solutions generated in a collaborative environment are more comprehensively analyzed and vetted.
- A team that with its performance is able to demonstrate the value and benefits of collaboration to the agency, its stakeholders and customers.

## **Sustaining Collaboration Is the Challenge**

The challenge for this Handbook is to develop a CACP process that agencies can institutionalize in order to sustain it through changes in leadership or political and external influences. Therefore, a critical goal of the Handbook is to illustrate how a collaborative process can be realized and measured to demonstrate the value and benefits that are derived from collaborating to decision makers, operators, and stakeholders. Inherent in a collaborative process is a commitment by leadership to create a transparent and accountable organization, thereby increasing confidence in the process, empowering staff to save time and money and delivering reliable, high-quality, cost-effective projects and services to the traveling public. To that end, this Handbook will endeavor to illustrate the steps and methods that an agency can employ to achieve an institutionalized, sustainable CACP process.

## **How to Use the Handbook**

This Handbook is divided into seven chapters to guide airports of various sizes, composition, and governance in the development, implementation and oversight of a Collaborative Airport Capital Plan.

- Chapter 1 provides an introduction and describes the purpose of this Handbook and the value of a CACP process.
- Chapter 2 (Collaboration and Communication) describes the distinctions between collaboration and communication and the measures and indicators of successful collaboration.
- Chapter 3 (The CACP Process) provides a detailed overview of the various components of the CACP process (the inputs, outputs and feedback loop), the CACP process itself, and the CACP process participants.
- Chapter 4 (The Foundation: Leadership) describes the role of leadership in a CACP process in terms of policy, organization, resources and management.
- Chapter 5 (The Nuts and Bolts: Development and Implementation) details critical steps in the development and implementation of the CACP process.
- Chapter 6 (The Checks and Balances: Oversight) offers techniques for overseeing and managing a CACP process, including important elements of evaluations and motivations.
- Chapter 7 (Tools and Technology) identifies methods and offers suggestions for tools and technology used to facilitate a CACP process.

More importantly, this Handbook provides a detailed guide to the steps, goals, actions, participants, methods, products and results associated with each phase in a CACP process. It also contains sample forms and model documents on various processes discussed in Chapters 4 through 6 along with a bibliography and a glossary of terms, abbreviations, and acronyms.

The intent of this Handbook is to introduce airports to the fundamentals of the ACP process and guide airports in developing a collaborative framework for the successful development and execution of an ACP.

# Collaboration and Communication

## Why Collaborate?

Airport capital planning processes require significant sharing of information as well as an understanding of, and agreement on, priorities, methods, commitments and expected results. Communication alone is not sufficient to develop and deliver successful projects and programs in an ACP: more involved techniques like collaboration are needed.

Collaboration is typically employed to solve problems, develop new understanding, and design new expected results. To be effective, collaboration needs to be set in a results-driven framework with defined targets and documented achievements. Furthermore, collaboration is important for the development of sound management practices to

- Increase confidence of the participants;
- Obtain buy-in from funding entities, stakeholders and the public in the ACP process; and
- Create accountable and transparent reporting structure.

## The 5 Cs—A User's Guide

For the purposes of this Handbook, there are many subtle distinctions between communication, coordination, cooperation, collaboration and consensus that require definition for a better understanding of the process. These terms are often used interchangeably and misused in a way that adds confusion to the process. Each has its own merits and limitations and each plays a role in the CACP process. An article in the publication *Innovating*, entitled “Collaboration vs. C-Three (Cooperation, Coordination, and Communication)” (Denise, Leo 1999), details the distinctions and importance of these concepts.

**Communication** Communication is a process by which “people understand each other and how information is transferred in an organization.” It involves an action to express and/or exchange information (not just facts but also policies, targets, failures, etc.) from one person to another. The activity of dispensing information is the expressive part of communication. The other critical aspect is listening and understanding, or comprehensive communication. As noted in the *Innovating* article,

For most of us, failure to speak is less critical than failure to listen. Most of us are better at pushing information out than at taking it in. (Denise, Leo 1999)

Communication is informative and typically one-way. There is a *transfer* of information but not necessarily an *exchange* of ideas. This transfer is critical for establishing priorities, expectations and

## CHAPTER 2 AT-A-GLANCE

*This chapter includes*

- Benefits of collaboration,
- Best practices for collaboration and communication,
- Strategies for measuring collaboration, and
- Institutionalizing collaboration.

process tracking. A frequently used form of communication is to issue a directive, a standard of performance, or a policy statement. The goals, process, roles and responsibilities, targets, and benefits are the essential components of any effective ACP and must be communicated. This can be accomplished by in-person meetings and by electronic or hard copy documentation (memos or reports).

**Coordination** Coordination is the process of bringing a team together to develop common goals and objectives. It begins with the assumption that there are differences in what people comprehend about a process, and that there are overlapping responsibilities, redundancy in processes, and even conflicts in goals and objectives. Coordination is the framework through which the process is clearly communicated, and otherwise competitive and contradictory processes are aligned and mutually supported. Coordination is fundamentally based on two conditions:

that the people and the units know what they are to do and when they are to do it; and that they see the relationship between what they do and what the coordinated whole achieves. (Denise, Leo 1999)

Coordination is the responsibility of leaders to orchestrate, managers to demonstrate and staff to accommodate.

**Cooperation** Cooperation is a process in which a team works together to achieve mutually beneficial goals and results. Critical to gaining cooperation from a team is a shared understanding of the goals, value and benefits of the process as well as the expectations of the teams' performance. Creating a culture of cooperation requires as much of an openness to work together on different ideas as it is about achieving high performance.

**Collaboration** Collaboration is a dynamic process with real-time interaction between people that is iterative and evolutionary. ***It is not about agreement but rather about creation.*** It is an interactive process conducted by people, preferably in person, in which ideas can be exchanged and policies, targets, measures and metrics can be shaped and reshaped from people's input based on their experience and knowledge.

Unlike communication, it is not about exchanging information. It is about using information to create something new. Unlike coordination, collaboration seeks divergent insight and spontaneity, not structural harmony. And unlike cooperation, collaboration thrives on differences and requires the sparks of dissent. (Denise, Leo 1999)

For the purposes of this framework, there are four steps to creating collaboration.

1. Define the goals, objectives and challenges. Establish a results-driven framework with achievable targets.
2. Define the team and clearly communicate and document their roles and responsibilities.
3. Build sufficient time into the schedule for dialog and exchange of ideas.
4. Harness the results, demonstrate what is achieved and reward success.

**Consensus** Consensus is when an entire group reaches general agreement such that all ideas and opinions have been listened to and considered. Consensus is a successful result of communication, cooperation and collaboration. It is the process by which the majority of those involved reach an agreement on the strategy, process, policy, and results. **In fact, a true test of a successful collaboration is that consensus is reached indicating that those involved in the process have attained a shared understanding of what is important and can realize its benefits.**

## Methods of Communication and Collaboration

The focus of this Handbook is to describe effective methods and strategies for communicating and collaborating as the distinctions between the two are often blurred. There is significant confusion and important differences between the two that play a key role in a successful ACP.



**Collaboration is predicated on good communication but communication does not substitute for collaboration.**

The methods of communication and collaboration can be via written documentation, electronic documentation, or direct human interaction. Technology can significantly aid in communication as well as facilitate collaboration but **nothing substitutes for in-person interaction**. It is equally important to know who needs to be engaged in a collaborative process and who needs to be informed and therefore communicated with on a regular basis.

During an ACP process, communication can take various forms, including

- Agency staff and project meetings;
- Written policies, procedures, standards, directives, and so on;
- Capital Program Management System (CPMS) software (status updates, automatic notification, data tracking, reports);
- Dashboard, scorecards, and so on;
- Email;
- Intranet, extranet, Internet (Microsoft SharePoint sites, document control sites, blogs, listservs, wiki);
- Social and professional networking sites;
- Newsletters;
- Media relations programs; and
- Government and community affairs plans.

Collaboration can take various forms, such as through

- Regularly scheduled meetings with project and leadership teams,
- Teleconferencing,
- Videoconferencing,
- Interactive whiteboard technology (e.g., Smartboard), and
- Web conferencing technology.

Descriptions of the methods for both communicating and collaborating for each step in the CACP process are detailed in Chapters 4 through 6. A summary of recommended methods of communication and collaboration is included in Figure 2 as a quick reference guide.






























































The best practices regarding collaboration and communication were primarily found in the literature from the healthcare, higher education and transportation industries. A few examples of notable findings are as follows:

### **Best Practices for Collaboration**





- Set expectations for results, products and levels of collaboration with clear measures to mark progress.
- Apply technology tools to create interactive shared workspaces when needed to synchronously connect people in different locations.
- Create a safe environment for all to listen to different opinions and share ideas.
- Document decision-making processes that describe how ideas are shared and consensus is reached.
- Establish a platform for all to report on mistakes and failures in a safe, non-punishment environment where creative solutions can be offered.

### **Best Practices for Communication**

- Conduct productive meetings by being clear on meeting objectives, providing ample notice, setting an agenda with designated participants, and clearly documenting accomplishments, actions and next steps.

Stage	Step	Communication Method		Collaboration Method		Frequency	Results
<b>Leadership/Policy</b>	Agency Policy					Annually	Accountability
	Organization					Annually	Accountability
	Resources					Annually	Accountability
	Management					Monthly	Accountability
<b>Development</b>	ACP Policy					Annually	Transparency and Accountability
	Financial Planning and Management					Annually	Transparency and Accountability
	Capital Planning and Management					Annually	Transparency and Accountability
	Capital Programming					Annually	Accountability
	Airport Capital Plan					Annually	Transparency
<b>Implementation</b>	Project Planning and Definition					When completed	Accountability
	Design					As needed	Accountability
	Construction					Weekly	Accountability
	Project Closeout and Evaluation					When completed	Accountability
	Operation					Annually	Accountability
<b>Oversight</b>	Performance Management					Monthly	Transparency and Accountability
	Evaluation					Annual/As needed	Transparency and Accountability
	Meeting and Reporting					Monthly	Transparency and Accountability
	Motivations					Annual/As needed	Transparency

**Symbols**

Hard Copy Documentation   
 Electronic Documentation   
 Dynamic Meetings   
 Informative Meetings 

**Figure 2. Recommendations for communication and collaboration.**

- Provide status updates in writing and present findings to appropriate parties according to a designated schedule and discuss at regularly scheduled meetings.
- Develop multiple mediums for communicating on a regular basis: newsletters (hard copy and electronic), bulletins, staff meeting updates, published progress reports, email blasts, and so on.



### Case Study 1: Methods of Collaboration

The Columbus\*Stat Program formalized collaboration among key managers to be accountable, transparent and flexible in managing their programs and to allow for change and innovation. It maintains a commitment to regularly communicate results of progress, success, failures and improvements to the mayor and his top aides.

The program began with a half-day workshop involving department managers to collaboratively develop a mission statement and measures to accomplish that mission. The development of those measures became more accurate and useful due to the dynamic and interactive involvement of the team in the process.

Once the measures were defined, each had a defined reporting frequency and managers were responsible for reporting on their data quarterly or monthly.

The Office of Performance Management meets with managers to establish performance measures, with the focus on developing measures that work for the managers and engages managers in a collaborative process that is supportive of their needs.

Internally, managers communicate performance using written briefs and performance dashboards. They collaborate on results in staff meetings and at regular Columbus\*Stat panel review meetings.

The City of Columbus, Ohio, attributes its success to the decision made by leadership to formally engage managers and their staff in the process, thereby demystifying the process and accelerating buy-in from managers and staff. The philosophy was that in order for the performance measurement to be meaningful, leadership needed to engage the people who work in the departments to develop the metrics. From the beginning, ground rules were established requiring that metrics be directly related to the mission and communicated to the public regularly. For example, if the mission identifies a customer-focused service, then that metric will demonstrate how the customers will benefit from that service.

### Critical Success Factors

- Provides leaders and managers with the information they need to track performance, document success and identify opportunities for improvement.
- Collaboration requires strong leadership, designation of key departments with clear roles and responsibilities, established targets and results defined and reviewed regularly, and forum for regular review, monitoring and reporting on progress.
- Since its inception in January of 2006, the City has 100% of the departments actively participating in Columbus\*Stat, involving over 600 metrics for 150 programs.

## Measuring Collaboration

So how does an agency know that it has been successful in collaborating? Using a measurement system to determine the level of collaboration between internal stakeholders provides a quantitative metric to demonstrate success.

Once an environment of collaboration is created, the greatest challenge is then to develop a system to institutionalize collaboration within the agency that holds its staff and leaders accountable. To do that, it is critical that “collaboration” be measured and documented.

Measures of collaboration can be applied to both personnel and an entire organization. In his article entitled “Measuring Collaboration Among Grant Partners,” Bruce Frey, from the University of Kansas, conducted significant research on collaboration and developed a collaboration measuring technique for secondary education grant programs among partners. This article described the importance of measuring collaboration for soliciting funding entities and for sustaining innovative programs in the future. This collaboration measurement scale has been adapted for measuring collaboration between internal stakeholders in the ACP process (see sample forms on pages D2 through D4 of Appendix D).

These forms can be used annually, or at key milestones or deliverables depending upon the complexity of the ACP. It is intended to be used by each Leader and Partner identified in each step of the CACP process (see Chapters 4 through 6). As important as it is to use this evaluation form to rate collaboration within an organization, it is even more essential that this rating be incorporated into individual staff goals and performance evaluations and subsequently used as the basis for rewards and/or penalties.

## Institutionalizing Collaboration

The process to establish a culture of collaboration and to institutionalize it begins with leadership. Leaders must clearly communicate that collaboration is expected. Leaders must demonstrate the importance and value of collaboration by illustrating its benefits and recognizing those who participate. Leaders establish a platform for collaboration by

- Convening regularly scheduled meetings and encouraging the sharing of ideas;
- Defining and requiring regular, transparent reporting;
- Holding managers accountable for communicating open and honest information;
- Setting standards for achieving targets and performance objectives; and
- Measuring and celebrating successful collaboration.

Leaders ultimately hold managers accountable to collaborate, and, as described in this Handbook, to deliver a collaborative ACP process that is transparent and honest. Leaders change on a regular basis, and, in the absence of a collaborative director or Executive Leader, the internal department managers become the leaders who must work together and hold their staff and supervisors accountable to develop, manage and deliver an ACP in a collaborative manner. Regardless of where the expectation of collaboration originates, what is most important is that the value of the CACP process is clearly understood and the methods and processes to develop and implement it begin to happen in earnest.

Collaboration can also be forced onto an agency by external stakeholders demanding more accountability and transparency. Those external stakeholders can be agencies such as the FAA or TSA, tenants, or the general public, which includes neighbors and advocacy/community groups. Once the imperative to be more accountable and transparent is effectively communicated, then the process to collaborate becomes institutionalized. Then it is more likely that there will be investment in the resources to facilitate the process. The more managers become collab-



orative and communicative, the more likely those managers will be chosen for their leadership and management skills, further institutionalizing collaboration.

Since leaders change on a regular basis, it is important for an organization to establish a leadership structure composed of people who can sustain a culture of collaboration and can help institutionalize the process. An institutionalized culture of collaboration allows for a standard set of expectations to be defined and a framework for new leaders and managers to emerge.

## Indicators of Successful Collaboration

As stated, collaboration must begin with leadership. Leaders must set an example through their own commitment and demonstrated actions. They must set expectations for their staff and set standards of performance for managers to follow. A collaborative agency is able to increase accountability and transparency internally and externally, which is essential for organizational buy-in and increased confidence by various stakeholders to lend funding and support.

Benefits that can be realized from successful collaboration are as follows:

- More resources available for funding projects/programs, staff training, new personnel, grants for innovative projects, and so on.
- More opportunities for partnership provided by potential funding entities, granting agencies, and so on.
- Higher quality proposals received from qualified consultants and better bids received from contractors.
- More interest in competing for space in a facility by existing and new tenants.
- Increase in passenger traffic and higher revenues realized from expanded patronage.
- Improved relationships with the community and elected officials (more opportunity for joint sponsorships/events and speaking engagements).
- Increase in awards and recognition by peers in the industry as well as in trade organizations, transportation agencies, and so on.

The more successful the CACP process, the higher the demand to share best practices and lessons learned. Taking the time and opportunity to regularly reach out to and engage the industry and broader audiences to share experiences of successful collaboration is critical to the continued growth of an agency and innovation.

## CHAPTER 2 SUMMARY

The following topics were covered in this chapter:

- Definitions of the 5 C's,
- Collaboration and communication techniques,
- Measurement and indicators of successful collaboration,
- Process to institutionalize collaboration, and
- Best practices for communication and collaboration.

## Additional Resources

- Denise, Leo, "Collaboration vs. C-Three (Cooperation, Coordination, and Communication)." *Innovating*, Vol. 7, No. 3 (Spring 1999) pp. 25–35.
- Frey, B. B. et al., "Measuring Collaboration Among Grant Partners." *American Journal of Evaluation*, Vol. 27, No. 3 (September 2006) pp. 383–392.
- Frey, B. B. et al., "Measuring Change in Collaboration Among School Safety Partners." *Persistently Safe Schools: The National Conference of the Hamilton Fish Institute on School and Community Violence*, 2004, pp. 63–72.
- Wegner, Phil and E. Fort, *Facilitating Government-Wide Collaboration and Knowledge Management: The MAX Federal Community*. Office of Management and Budget (OMB) / Budget Formulation and Execution Line of Business (BFELoB) (July 22, 2009).

## CHAPTER 3

# The CACP Process

### CHAPTER 3 AT-A-GLANCE

*This chapter includes*

- Inputs to the process: resources, tools, and industry experts;
- Outputs to the process: results, products, and motivations;
- Feedback loop;
- Responsibility matrix for participants in the process; and
- Sample organization charts.

### Context of the CACP Process

The CACP process has a number of principles, goals, methods, feedback loops, and accounting mechanisms that need to be institutionalized and reinforced in order for the process to be sustained. Critical to achieving a sustainable, collaborative process is the obtaining of buy-in from stakeholders who realize the benefits of collaboration, value the process, and **hold leaders and managers accountable** for achieving a CACP process (see Figure 3) even through times of change and transition.

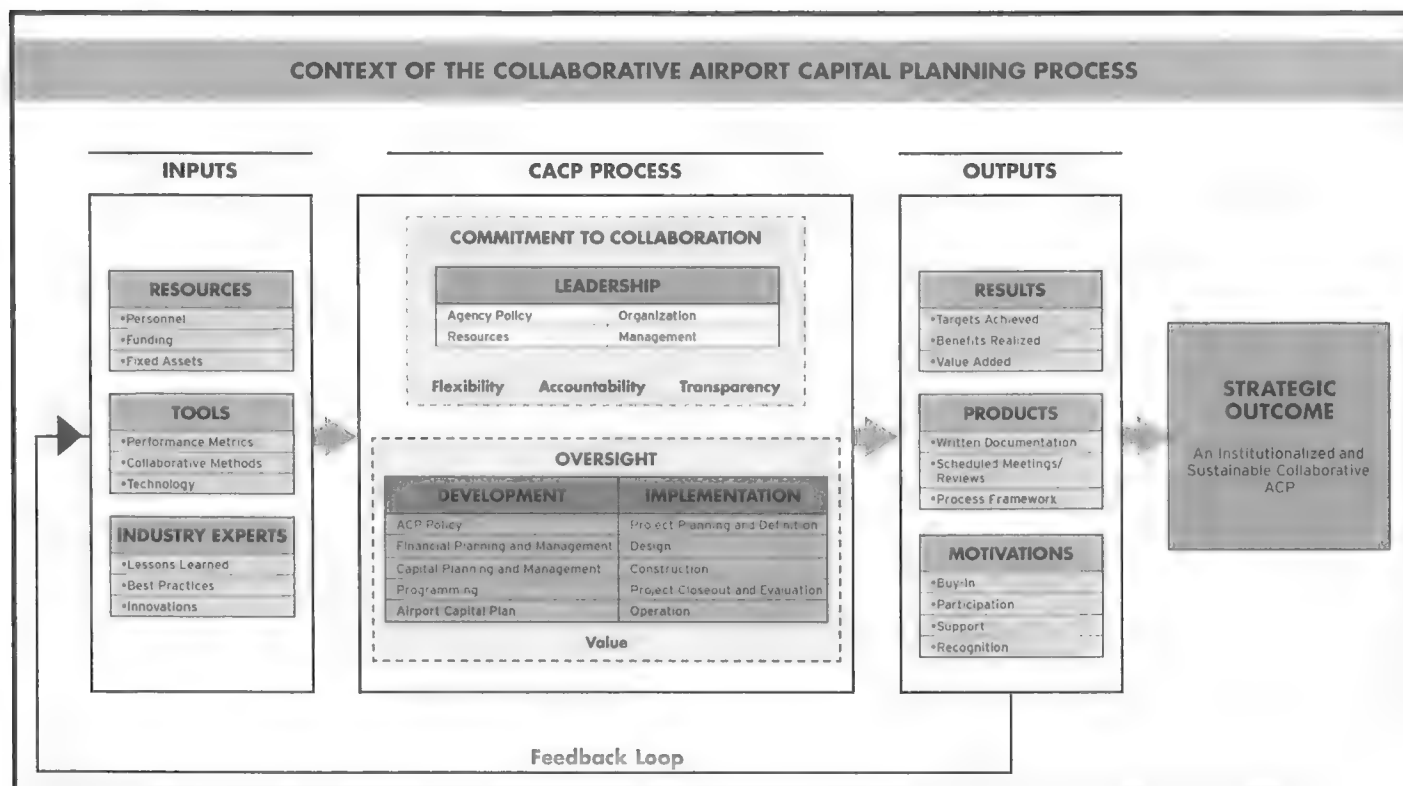
### The Inputs

There are three sets of inputs that contribute to the CACP process: 1) Resources, 2) Tools, and 3) Industry Experts. Leadership is responsible for managing and growing the **Resources** that exist within an organization. The first type of resource is the agency's *personnel* at all levels of the organization. The people in the agency are ultimately the drivers of the process and the beneficiaries of its success. They need to believe in the process and appreciate the benefits of collaboration. In managing a transparent, accountable and sound CACP process, it is the people within the organization that drive the process and ultimately will have pride of ownership.

The second major type of resource is *funding*, which is fundamental to an agency's ability to deliver needed services and provide state-of-the-art facilities for safe operations. Funding sources are diverse and so are the regulations and requirements for the use of those funds. As such, funds need to be managed to show that obligations are being met, which increases confidence among funding entities, from the general public to the FAA, that an agency is worthy of the investment.

The third type of resource is the agency's *fixed assets* that have both a monetary value and operational needs. Those assets need to be designed, managed, operated and maintained to achieve the highest level of performance and confidence among users. Decisions need to be made about when to retire or replace assets in the context of what will deliver the highest operational efficiency and value to the agency, its funding entities, stakeholders, and the general public.

The next set of inputs is the **Tools** used by the agency to demonstrate and measure the success of the process and performance of the system, and to communicate the value of the benefits realized to the people within an agency and to the organizations that provide funds to an agency. The first tool is the agency's *performance metrics*—both qualitative and quantitative—that document the system and administrative performance. These performance metrics support the performance management and oversight process, including the performance of the people in charge



**Figure 3. Context of the CACP process.**

of the process, project delivery, asset value, and service delivery. The second tool is *collaboration methods* (see Chapter 2), which refers to the formal process (platform and coordinated schedule) for the Leadership Team and Capital Management Team to successfully manage the input and decision making during the ACP process (described at the end of this chapter). These methods include person-to-person exchange, whenever possible and the use of real-time collaboration technology so that participants are able to share ideas to develop, implement, and oversee the ACP, manage change, assess risk, and develop alternative scenarios to achieve stated goals, targets, and benefits.

The last tool is *technology*, which includes software and hardware used to facilitate the communication of information and the dynamic management of performance metrics and processes. Technology can range from simple Microsoft Word and Excel documents exchanged one at a time, to the use of sophisticated capital program management systems and collaboration software.

True collaboration technology provides an interactive workspace for the synchronous discussion of ideas. Collaboration technology tools include teleconferencing, videoconferencing and web sharing applications such as GoToMeeting, WebEx, Bridgit, and AdobeConnect. A set of communication tools commonly referred to as “collaboration software” can facilitate and improve the exchange of information among team members. This category includes document control software and web-based programs such as Microsoft SharePoint as well as sophisticated capital management systems such as SDG CapitalVision, CIPPlanner CIPAce, and Skire Unifier.

The final set of inputs to the CACP process is *Industry Experts*. Agencies benefit from external review and opportunities to exchange *best practices*, *innovations* and *lessons learned* with other airport agency executives working to achieve the same goals. Agencies do not operate in a vacuum

and every day there are different conditions and challenging situations that agencies need to respond to and address. Reaching out to other experts to learn how to be innovative and solve problems is a critical element to evolving and institutionalizing the process. The more exposure to both best practices and the experience of others, the more support for the process and buy-in will be garnered by showing how successes have been achieved elsewhere. Therefore, for collaboration to be successful and for a CACP process to be sustainable, it is critical that an agency reach outside, be open to new ideas, and share its own successes and lessons learned.

## The Outputs

The outputs of the CACP process have three essential forms: 1) Results, 2) Products, and 3) Motivations. The **Results** are the *targets achieved*, the *benefits realized* and the *value added*. Results need to demonstrate to all stakeholders the targets that were achieved and those that were not. Results should also identify the benefits that were realized by using a well executed and managed CACP process and how that process added value in terms of monetary and/or operational efficiency, increased confidence in the agency and buy-in from stakeholders.

The second of the outputs of the CACP process is the **Product**, which can take one of three forms:

1. The physical, tangible evidence of progress with the CACP process such as a written document, report, or data available for others to access and review.
2. A dedicated and respected adherence to a regular meeting and reporting schedule that provides a forum for collaboration, management, and improvement in the CACP process.
3. A process, model or system that supports the CACP process.

The third type of output of the CACP process is **Motivations**. Motivations promote institutionalizing change and adoption of the CACP process by encouraging participation in the process and sustaining a productive environment for innovation and improvement. People are instrumental in delivering a transparent and accountable CACP process; it is also people that need to demonstrate its value and benefits. Executive Leaders must invest in their people and encourage collaboration by recognizing performance. Motivations include rewards for good performance, *recognition* of best practices, and continued *support* to increase *participation*. Motivated staff will strive to produce high-quality results. It is also through staff that effective marketing of the benefits can be communicated among peers or at conferences or before boards and commissions. The more transparent and accountable a CACP process, the more confidence others will have in the process and the more inclined they will be to participate, thereby achieving *buy-in*.

## The Feedback Loop

The feedback loop is a continuous process of sharing observations, concerns, and suggestions with the intent to improve performance of an organization or a process. It illustrates how support can be provided to foster innovation and exceptional performance among key participants. The feedback loop uses data from past positive and negative experiences and practices to create best practices and lessons learned to be used to guide better decision making in the future.

An organization's leaders have the responsibility to establish and maintain an effective feedback loop. The commitment by leadership to the four principles of Flexibility, Accountability, Collaboration and Transparency, must be demonstrated throughout all the components of the CACP process, with continuous oversight, adherence to meeting schedules, openness to change, commitment to solve problems in a positive manner, and diligence in managing metrics



throughout the process by feeding that information back into the process regularly. Leadership needs to be unwavering in its commitment to

- Oversee the process;
- Be transparent about expectations, roles and responsibilities;
- Define targets, goals and results; and
- Learn from successes and failures by feeding that information back into the system.

Leadership needs to be equally accountable for performance throughout the process, reporting on progress, metrics, targets and delivery of services. Communication of the process and the results (good and bad) needs to be done both in person and in writing. The success of a well managed CACP process is evident in the outputs and will demonstrate added value, thereby increasing buy-in to support a sustainable CACP process.

## The CACP Process

The three components of the CACP process are: 1) The Foundation: Leadership, with four major areas of responsibility; 2) The Nuts and Bolts: a two-phase process that includes a Development Phase and an Implementation Phase with five steps each; and 3) The Checks and Balances: Oversight, with four elements. For each component of the CACP process, the following items defined below are described in detail in Chapters 4 through 6:

- **Goals:** The results that a program or organization aims to accomplish.
- **Actions:** The tasks that must be executed by the participants involved in the CACP process to accomplish the results.
- **When:** The recommended time when a step should occur.
- **Leader:** The senior manager of the department responsible and accountable for executing the actions of the step (i.e., tasks), and for partnering with the appropriate departments, to deliver the specific results and products described in the CACP process framework. This individual is responsible for developing an environment that encourages staff to communicate and collaborate, and for managing a transparent and accountable CACP process to develop, implement and oversee the ACP.
- **Partners:** A senior manager of a department responsible and accountable for collaboration with the Leader to deliver specific results and products described in the CACP process. This individual is also responsible for developing an environment that encourages staff to communicate and collaborate, and for committing to transparent and accountable participation in the CACP process.
- **Methods:** The mechanisms by which communication and collaboration are achieved either by human interaction or physical and/or electronic documentation.
- **Products:** The outputs or services produced by the actions taken in a CACP process step and delivered to stakeholders (whether internal or external). Products take the form of either written documents such as manuals or agreements, data such as forecasts or projections, process or procedures, events or activities such as meetings or evaluations, or awards or benefits.
- **Results:** The effect a step in the CACP process is intended to have. Results will enumerate targets achieved (and missed), quantify benefits realized, and demonstrate value added. They will substantiate progress on the goals that the Leader and Partners are accountable for in each step of the CACP process as well as the expectations of other stakeholders involved in the CACP process.

A well-documented, accountable and transparent process with a dedicated and committed leadership team will yield a CACP process that is sustainable. The more managers and staff are able to realize the benefits of the process and are rewarded for their active participation, the more

buy-in there will be in the organization to collaborate, innovate, and succeed. The more stakeholders see that value, the more support there will be for investment in the resources and tools needed to improve operations, and the more demand there will be to sustain a process regardless of changes in leadership because the demand and expectation for a high level of performance will be established. A sustainable CACP process needs to be well documented and institutionalized in the functional operations of an agency to be viable and to withstand the inevitable leadership changes. The more an agency demonstrates results to stakeholders, industry experts and the general public, the more support there will be to institutionalize and sustain the CACP process over time.

## CACP Process Participants

The CACP process detailed in Chapters 4 through 6 identifies all potential key participants and their associated responsibilities in the process. As illustrated in the Responsibility Matrix in Figure 4, the following is a description of the responsible parties and their roles in the CACP process:

- **Executive Leader.** The individual at an airport responsible for managing all operations and accountable to regulatory and approving authorities for the financial integrity of all operations, programs and services, including the delivery of an ACP. The Executive Leader for an ACP can be the Executive Director or President and CEO of the airport or the Director of the airport facility of a multi-purpose authority, depending on the size, governmental structure, and complexity of the airport.
- **Leadership Team.** The senior manager(s) responsible for mission accomplishment and overall operations of the airport. The senior management staff within an airport organization are those individuals responsible for overseeing the financial, engineering, planning, operating, administration, and information technology departments. The Leadership Team at a general aviation (GA) or small-hub airport may be the same composition as the Capital Management Team.
- **Capital Management Team.** A capital management team (CMT) is established by the Executive Leader with the Leadership Team and is composed of senior managers from those departments that are responsible and accountable to develop, implement and oversee the ACP and play a vital role in determining the outcomes of the ACP. The composition of the CMT will depend on the size, governmental structure and complexity of the airport. For example, a CMT may include a CEO of the authority, director of aviation [or the operations and maintenance (O&M) Department], and senior managers from finance, planning, engineering, and information technology.
- **Internal Stakeholders.** Those individuals, groups of individuals, or departments internal to the airport organization that may include the executive administration, O&M, administrative, and technical departments, and any board of directors internal to the airport. For example, in the CACP process, an Internal Stakeholder may include the Leadership Team or, for more complex airports, may also include the CMT.
- **External Stakeholders.** Those individuals, groups of individuals or organizations that exist and operate outside of the airport organization that include financial, regulatory and approving agencies (e.g., FAA, TSA and outside boards and commissions), governmental agencies (i.e., federal, state and local), tenants (e.g., airlines, concessions, car rental agencies), and the general public (e.g., neighbors, advocacy groups, and the traveling public).

For the purposes of the Responsibility Matrix (Figure 4), Accountable means ultimate ownership of all decisions, actions and outcomes of the Agency. Responsible means executing the actions, making the decisions and ensuring the outcomes of the Agency. Obligated means






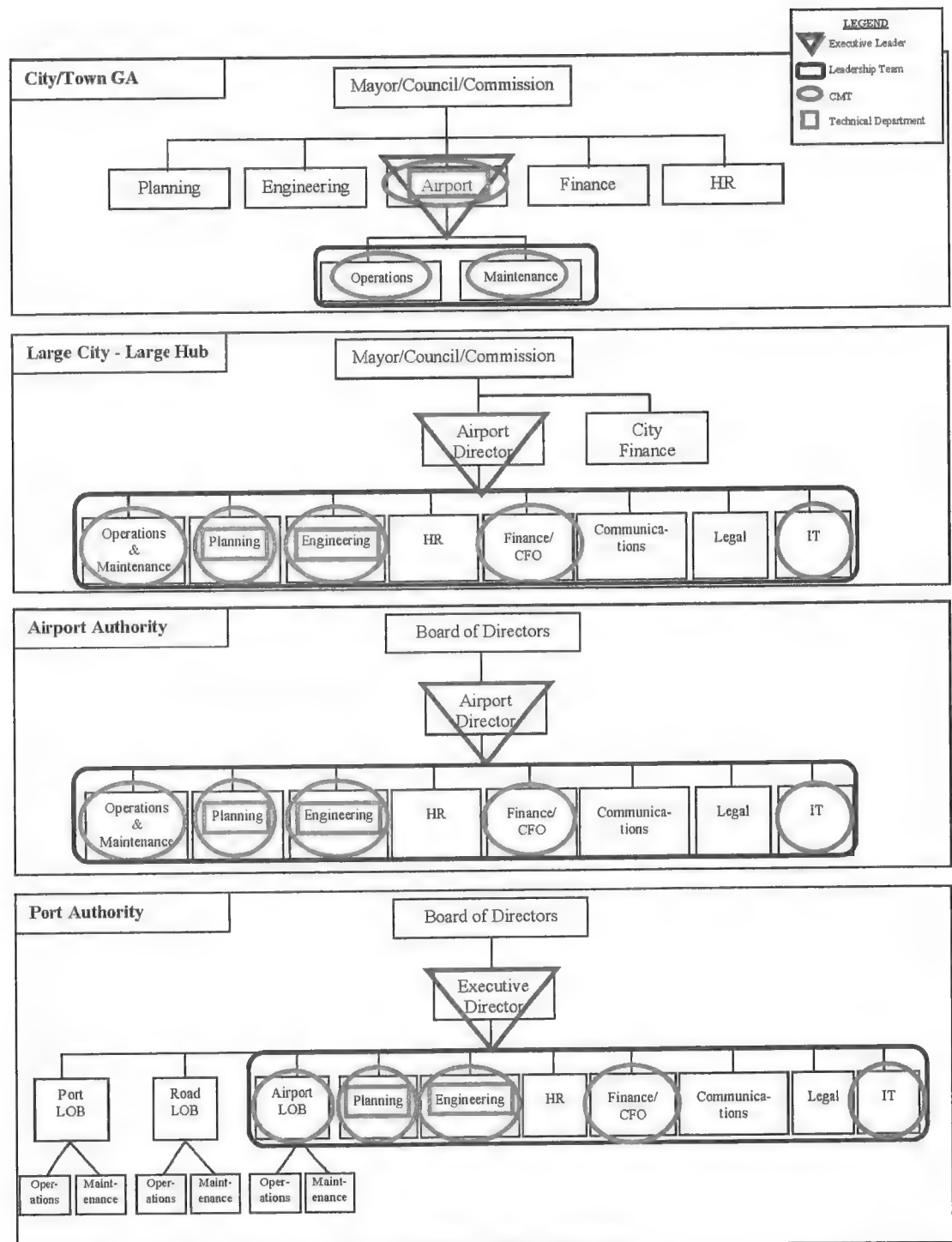
Responsible Party	Leadership	Development	Implementation	Oversight
<b>Executive Leader</b>				
	Establish culture of collaboration. Define mission and goals. Establish Leadership Team. Clearly define roles and responsibilities. Set priorities. Obtain buy-in from Approving Authorities.	Designate CMT with clearly defined roles and responsibilities. Define and set strategic direction for the ACP process. Provide resources. Set expectations for targets.	Provide resources. Communicate with CMT regularly. Support and seek approval for project authorization from Approving Authorities as needed.	Track progress through established mechanisms for reports and meetings. Provide resources to continue to manage the process. Report on outcomes, benefits and accomplishments.
<b>Leadership Team</b>				
	Collaborate on defining mission and goals.	Collaborate on goals, targets and results. Collaborate on developing ACP Policy. Communicate process to Executive Leader.	Collaborate on review of performance, projects, people and resources. Manage resources for effective delivery of projects on time and within budget.	Collaborate on progress, performance measures, results and targets. Establish schedule and format for reporting and managing change and necessary approvals.
<b>Capital Management Team (CMT)</b>				
		Communicate goals and understand needs from operating and technical departments. Collaborate on financial metrics and allocation of resources.	Collaborate with Leaders on the implementation of ACP. Convene regular meetings to review and respond to reports on progress, budget, and schedule.	Collaborate on performance metrics. Measure performance. Report regularly on progress related to scope, budget and schedule.
<b>Internal Stakeholders</b>				
		Provide scope budget and schedule data to develop projects. Conduct analyses of ACP. Collaborate on priorities, budget and schedule.	Execute the ACP. Meet regularly to report on progress. Identify needs. Collaborate with Partners for scope, cost and schedule data needs.	Communicate progress and challenges regularly. Identify needs, risks and changes and develop solutions accordingly.
<b>External Stakeholders</b>				
		Receive and support ACP.	Collaborate on developing scope of projects, reviewing project documents and providing input.	Receive quarterly reports on progress, achievements, status of key programs and projects.

Figure 4. Responsibility matrix.



Note: CFO = chief financial officer, LOB = line of business.

**Figure 5. Sample organization charts.**

actively participating in the process and providing data required to support decision making by Internal Stakeholders; and Informed means receiving information and providing feedback as needed.

Figure 5 illustrates the different organizational charts for airports of various sizes and governing structures and where potential CACP process participants would fit into the responsible party categories described above. These categories and the responsibility matrix can be adapted to airports of all sizes and structures.

### CHAPTER 3 SUMMARY

The following topics were covered in this chapter:

- Framework to institutionalize collaboration,
- Interrelated roles of CACP process participants,
- Interactive leadership,
- Continuous oversight,
- Adherence to meeting schedules,
- Openness to change,
- Commitment to solve problems, and
- Essential items of the CACP process.



## CHAPTER 4

# The Foundation: Leadership

### CHAPTER 4 AT-A-GLANCE

*This chapter includes*

- Definition of roles and responsibilities;
- The role of the Capital Management Team (CMT);
- Four managing principles: flexibility, accountability, collaboration and transparency;
- Agency policy: vision, mission and goals;
- Organization: environment for collaboration;
- Resources: staff and tools to deliver results;
- Management: establish corporate culture; and
- The power of partnerships.

There are a number of important factors Executive Leaders must consider in creating an innovative and successful organization that directly relates to the development, implementation and management of a CACP process.

First, Executive Leaders must take a step back and re-examine to whom an ACP is important and for what reasons. Knowing who the decision makers, influencers, and funding entities are helps to shape the policies and procedures for accounting and reporting on critical components of the CACP process. Furthermore, recognizing the needs and wants of the beneficiaries, partners and participants is a first step in developing a process and program that will gain the support for new initiatives, programs, and projects important to the growth of the airport.

Second, Executive Leaders must define clear roles and responsibilities to effectively manage expectations on performance and deliver expected results. A responsibility matrix is a useful technique to guide the selection of key participants, to define key roles and responsibilities for



### Case Study 2: Institutionalizing Collaboration to Achieve Transparency and Accountability

The Columbus\*Stat process began with key stakeholders and participants signing a formal agreement known as the Columbus Covenant (see page C-2 of Appendix C). This agreement was driven by the mayor and binds designated internal decision makers and external stakeholders to a set of strategic goals for performance management. Furthermore, the Covenant is embedded in the employee handbook. The Covenant delineates a set of high-level goals to which all strategic priorities and budgeted initiatives are linked.

The Columbus\*Stat program designates an executive level panel composed of the

- Mayor, his chief of staff and deputy chiefs of staff;
- Financial Management Department Administrator (which supervises the Performance Management Office); and
- Directors of finance, human resources, information technology departments.

This panel meets with designated Columbus\*Stat analysts assigned to each department and representatives from relevant departments. The panel receives regular briefings and reviews progress according to a preset quarterly schedule in a supportive and positive environment. Staff is well prepared for the meetings, and agendas are carefully created to avoid surprises and to allow appropriate time for preparation and responses. The reports are then made available on a performance dashboard for department managers on the City's intranet for them to monitor progress.

#### **Critical Success Factors:**

- Institutionalized a process with a Covenant and through changes to organizational structure, tools, and procedures.
- Created a culture of collaboration and empowers managers to own the process as well as improved services provided.
- Departments worked together to solve problems and improve performance in a simplified process.
- Enabled the mayor's management panel to gauge performance, track effectiveness, determine opportunities for improvement, celebrate achievements, and address shortcomings.
- Uncovered good policy and procedural ideas.

the key participants in the CACP process (see Figure 4 in Chapter 3) and to clarify expectations and objectives regarding procedures, reporting and measures of accountability.

In simple form for a smaller airport, the participants in the CACP process could include the Executive Leader, some variation of a CMT (or same participants as the Leadership Team) and both Internal and External Stakeholders (see Figure 5 in Chapter 3). In larger, more complex airports, the Leadership Team will share the accountability role with the Executive Leader as those individuals are typically in charge of making policy and reporting on critical aspects of the organization. However, the Executive Leader will likely be involved at any size airport because he or she is ultimately accountable to the Agency and Approving Authorities for all actions and results in the CACP process.

The Executive Leader is responsible for issuing the directives, policies and procedures of the CACP process. However, the CMT is responsible for overseeing the process and ensuring that all the components of the CACP process are delivered. Internal stakeholders are obligated to participate in the CACP process, provide data and report on the results and, when necessary, collaborate on new measures, procedures, and actions.

In an accountable and transparent organization, it is the responsibility of the key participants to inform External Stakeholders of the progress on the process at appropriate times.

Third, establishing a culture of innovation and change is predicated upon leaders committing to four basic managing principles described below, which are the foundation of the CACP process.

#### **Compelling Practice #1 Organizational Structure for ACP Success**

The Massachusetts Port Authority (Massport) and the City of Phoenix (PHX) have dedicated departments, the Capital Programs Department and Capital Management Division, respectively, that are responsible for developing, implementing, and overseeing the ACP. Having this function centralized in one department creates ownership and accountability. It has proven to be successful for both Massport and PHX.

## Compelling Practice #2 Capital Management Teams

PHX has a CMT called the “Capital Improvement Program (CIP) Steering Committee” and it is used to confirm project scope and timing before a project can move forward to a more detailed scoping and cost estimate. The Capital Management Division (CMD) then conducts a scoping session with all key stakeholders to discuss scope, outline a project schedule, and begin to develop a project budget using a cost estimator. The scoping session is usually scheduled with enough time to complete a site walk of the proposed project area to identify key components, discuss issues, and assist the project estimator in answering questions, measuring quantities, etc.

From the results of the scoping session, the Project Manager from the CMD prepares a “Briefing Sheet” for presentation to the CIP Steering Committee. If the Steering Committee approves the project, the project will proceed to the Executive Team for review/approval. Depending on the timing of the project, it is either placed on a pending list for annual consideration or if it is an urgent request, a project number is assigned and funding allocated for it to be included in the ACP.

for all to follow. Executive Leaders must establish an organizational structure that holds managers accountable to deliver on the products and services established through a CACP process. To effectively set the tone and direction for true collaboration, the action items in the four areas of leadership described below should be conducted in person and not by using collaborative technology.

The four major areas of Leadership’s responsibility include

1. *Agency Policy:* Clarify and obtain buy-in for agency policy, mission, and goals by Stakeholders and Approving Authorities.
2. *Organization:* Establish an organizational structure, define roles and responsibilities, and set expectations that create an environment in which collaboration is encouraged and results are delivered.
3. *Resources:* Provide for sufficient resources and training for staff to deliver results and manage performance.
4. *Management:* Create a transparent management structure that imparts the value of collaboration and holds the organization’s key managers accountable and responsible for the delivery of a CACP process.

Leadership is ultimately accountable for delivering a reliable and innovative CACP process and to demonstrate the value and benefits to all stakeholders, thereby obtaining organizational buy-in to sustain the process.

## The Foundation

The first component of a sustainable CACP process is the **Foundation**. Executive Leaders need to set the tone and lead by example by demonstrating a commitment to collaboration throughout the process. Adherence to the four simple management principles of flexibility, accountability, collaboration and transparency will provide the foundation for organizational buy-in, improve credibility of the agency, and increase stakeholders’ confidence in the agency.

- **Flexibility** is critical given the changing political priorities and funding environment that can be expected during any business cycle. An organization must remain flexible in order to respond to these changes.
- **Accountability** is required to validate spending and measure the performance of services and programs and to demonstrate that the mission, goals, and results are achieved by consensus.
- **Collaboration** is essential to create a culture of innovation in an organization in which people are able to work together in a safe environment and share information and ideas that foster creative change and additional new ideas.
- **Transparency** is necessary to sustain buy-in and gain confidence from internal and external stakeholders that the benefits are realized and value added to the agency.

Leadership direction should embody the four managing principles to set forth the mission, goals, process and results

## Agency Policy

**Goals:** The goals of the first major area of Leadership responsibility are to

1. Develop a vision and managing principles for a flexible, accountable, and transparent organization.
2. Develop the agency's mission and goals to establish priorities and a process by which conflicts can be reconciled.
3. Define a strategic direction that frames what a successful process looks like and who will participate in the CACP process.
4. Obtain buy-in from Approving Authorities and Internal and External Stakeholders to support the vision, mission, and goals for the agency.

**Actions:** The following is a list of actions, activities or tasks that should be completed as part of this effort:

- Develop shared values that will set expectations for leadership and staff that are based on principles of honesty, integrity, trust, respect, personal leadership, and excellence in performance and services.
- Establish procedures for communicating, coordinating and collaborating on the agency policies and procedures and ultimately the ACP process.
- Define the agency's mission and goals, recognizing that conflicting goals common to airports (i.e., good customer service and low rates and charges) need to be reconciled and clearly communicated to stakeholders.
- Develop a system of, and environment for, open and honest communication where new ideas and different opinions can be shared by the Leadership Team and CMT with the objective of developing a consensus on the goals, processes, and results of a CACP process.
- Establish a collaborative process to set priorities and evaluate trade-offs that acknowledges conflicts, provides for resolutions, and sets expectations for results among various stakeholders.
- Secure buy-in and participation in collaboration, develop or formulate a mechanism such as a partnership agreement or covenant that requires key participants to sign on to the process.
- Formalize a process for annual review of the agency's mission, goals, and expected results.
- Raise awareness with Approving Authorities and the Internal and External Stakeholders on mission, goals and expected results of the agency.
- Establish levels of authority for approvals related to project authorizations and change management.
- Obtain support and resources from Approving Authorities to achieve agency goals and results.

**When:** Agency Policy must be established prior to the development of the CACP process and revisited regularly, as appropriate.

**Leader:** Executive Leader

- **Knowledge:** The Executive Leader must understand the following:
  - How the current political system works and its relationships with key decision makers.
  - How to determine who makes decisions, when they make them, and what they need to make them.

## Compelling Practice #3 Partnership with the Legislature

The Washington State Department of Transportation (WSDOT) has had a long-standing partnership with the State's Legislative Transportation Committee (LTC). The LTC has an oversight role for the WSDOT, but due to the strong working relationships, it also provides the catalyst and support for needed funding. This relationship has created one of the most stable state DOTs in the country, a model for all to follow.

## Compelling Practice #4 Coordinating with Stakeholders

The New Jersey Department of Transportation (NJDOT) implemented a two-step process to develop a capital plan. First, they developed a capital investment strategy that identified performance goals and investment levels by asset/investment categories. Once the overall strategy was in place, they developed the capital plan, coordinating with federal, state, and local stakeholders.

- How to maintain agency priorities in shifting political and financial environments.
- How to maintain political staying power and momentum over multiple years and administrations.
- How to communicate consequences and implications of decisions and integrate historical perspective and lessons learned to provide context for decisions.
- How to balance decisions across portfolios, programs, and projects.
- How to maintain an agency-wide view.
- How to build relationships with stakeholders, both internal and external to the organization.
- How to be more management-orientated and less technically focused.
- Skills: The Executive Leader must be skilled at the following:
  - Being organized.
  - Saying no, when required.
  - Seeing the big picture.
  - Keeping an open mind and remaining objective.
  - Building consensus by encouraging participation and dialogue.
  - Constructing internal and external networks.
  - Creating a safe environment that supports new ideas and creativity with a calm and positive attitude.
  - Looking at problems from multiple perspectives.
  - Communicating verbally and via writing.
- Ability: The Executive Leader must be able to
  - Be decisive internally and persuasive externally.
  - Create and manage organizational structure by defining roles and responsibilities.
  - Create an environment of collaboration.
  - Identify and acquire the resources needed.
  - Delegate and evaluate the work of others.
  - Empower, inspire and motivate staff by challenging them and holding them accountable.
  - Draw on the expertise of others and involve them in the process.
  - Be flexible, responsible, and accountable.

Partners: Leadership Team and Approving Authorities

Methods: The following is a list of techniques that should be used to communicate and collaborate with Partners as part of this effort:

- *Collaborate* with the Leadership Team at meetings
  - On the vision, mission and goals for the agency that will ultimately provide strategic direction for the CACP process.
  - To identify needs, reconcile conflicts and establish priorities.
  - To obtain consensus on the mission, goals, priorities and results.
- *Communicate* with Approving Authorities using in-person presentations
  - To obtain the necessary support and agreement on the vision, mission, goals and expected results aligned with resources to deliver a CACP process.
- *Communicate* with the Agency in writing and when appropriate in person on
  - The vision, mission, goals and expected results aligned with resources to deliver a CACP process.

Products: The following is a list of written documents, processes, data, events, and/or other benefits that will be produced as part of this effort:

- Partnership agreements, covenants, Memorandums of Understanding, and other documents that bind participants to accountable, transparent and flexible processes, including the CACP process facilitating buy-in and cooperation.



- Written mission statement, policy, strategic goals, standard operating procedures, guidelines, and directives.

Results: The following are the results an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended effort outlined above:

1. Agency priorities and expectations, including those for the ACP, are developed and communicated to Internal and External Stakeholders.
2. Policy goals, actions and results tied to defined targets that can be realized and connected to the ACP.
3. Organizational buy-in and commitment from Approving Authorities and Leadership Team.

## Organization

Goals: The goals of the second major area of Leadership responsibility are to

1. Create an environment in which collaboration and innovation is encouraged, expected and rewarded.
2. Develop a formal organizational structure with the Leadership Team and top managers to manage a flexible, accountable and transparent organization.
3. Set expectations for the performance of the agency.
4. Clearly define the roles and responsibilities of the Leadership Team.
5. Establish an organizational framework to coordinate, cooperate and collaborate to deliver agency results.

Actions: The following is a list of actions, activities, or tasks that should be completed as part of this effort:

- Define roles and responsibilities of key leaders and managers involved in the process.
- Develop a responsibility matrix that defines the roles and responsibilities of key participants (see Figure 4, the Responsibility Matrix, in Chapter 3).
- Develop an organizational chart that clearly identifies the qualities and skills necessary to manage an innovative and collaborative organization.
- Establish a strong coordinating structure with a dedicated schedule for reporting, reviews and progress meetings.
- Define the expected levels of service and the performance metrics aligned with goals and objectives.
- Establish a formal structure for leaders and managers to regularly interact and dialogue on organizational issues and performance.

When: Actions to be completed during scheduled meetings throughout the year and on an ongoing basis as needed.

Leader: Executive Leader (See Agency Policy for a description of Executive Leader.)

Partners: Leadership Team

Methods: The following is a list of techniques that should be used to communicate and collaborate with Partners as part of this effort:

- *Collaborate* with the Leadership Team in meetings to
  - Develop an organization with a formal structure and roles and responsibilities in an agency manual.
  - Develop standards of performance based on shared principles and values in an agency manual.
- *Communicate* to the Agency and Stakeholders in writing on
  - The organizational structure and roles and responsibilities for achieving the agency's vision, mission, goals, and expected results.

**Products:** The following is a list of written documents, processes, data, events, and/or other benefits that will be produced as part of this effort:

- Agency manual that may include policy goals, guidelines, responsibility matrix, organizational chart, schedule and reporting templates.
- Documented data on needs, metrics, cost, and schedule.
- Metrics on the organization's performance.
- Selected performance measures for key service areas.
- Established system and schedule for measuring performance on achieving goals and reporting on actions and results accomplished.
- Action plans for all departments linked to personnel with action items, deliverables and deadlines.

**Results:** The following are the results an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended effort outlined above.

1. Agency is coordinated, organized and structured to achieve its goals.
2. The Leadership Team is clear on roles and responsibilities and is empowered to deliver achievable results.
3. Key players own the process.
4. Effectively manage changes in funding, political priorities or resources so that they are seamless to the organization.
5. Begin the process to institutionalize collaboration among leaders and managers.



### Case Study 3: Organizational Change

The City of Columbus implemented Columbus\*Stat to demonstrate its commitment to transforming governments to be more accountable and transparent as well as to create opportunities and incentives to effectively and efficiently manage performance and increase public involvement.

The basic steps the City of Columbus used to create a culture of performance management in a collaborative framework were the following:

1. Key stakeholders signed a formal agreement known as the Columbus Covenant that defined a vision, mission, and goals (see page C-2 of Appendix C).
2. The mayor set the strategic direction based on input from key departments and political imperatives.
3. Key departments responsible for delivering services established roles and responsibilities for members of the Columbus\*Stat team.
4. Selected departments meet with the mayor's Columbus\*Stat Panel to confirm priorities, discuss any changes in services or programs, set performance targets, develop appropriate performance measures and establish an effective feedback loop to formalize regular monitoring and reporting.
5. Selected Departments collect data on select measures and work on a regular schedule with designated Columbus\*Stat analysts.
6. Data are analyzed for trends and concerns.
7. Information is shared at Columbus\*Stat Panel meetings concerning trends, specific issues and measures.

8. New and/or revised benchmarks, tasks and targets are determined as a result of the meetings.
9. Departments work to address problems and shortcomings, refine programs, measures and services and use this information to make necessary changes.

**Critical Success Factors:**

- Strong leadership committed to make the necessary changes.
- Transparency and accountability with the public increased confidence and credibility in the City government.

## Resources

Goals: The goals of the third major area of Leadership responsibility are to

1. Identify and provide adequate resources (human, technological and financial) and training to achieve goals and deliver results.
2. Develop partnerships with potential funding entities and co-providers of services.

Actions: The following is a list of actions, activities, or tasks that should be completed as part of this effort:

- Clearly understand and account for staff's, funding entities' and customers' expectations and needs.
- Embrace and expound the importance of good stewardship over funding resources and approval processes.
- Develop and nurture strong partnerships with contractors, concessionaires, vendors, regulators, and consultants.
- Provide sufficient resources to deliver results.
- Identify back-up resources in the event of changes in the economy or political priorities.
- Identify grant opportunities and track deadlines and submittals. Formalize grant commitments in written agreements.
- Identify risk and develop alternative scenarios.
- Optimize resources to deliver on goals and manage performance.
- Establish formal monitoring process and regular reporting tools.
- Develop achievable targets for process and performance.
- Provide staff with appropriate training and resources to achieve targets and results.
- Identify potential partners to supplement and/or support the delivery of services for the staff and for the airport and formalize in written agreements.
- Participate in external organizations and committees that are tied to funding programs.

When: Resources need to be secured and in place prior to the development of the ACP and then on an ongoing basis as needed.

Leader: Executive Leader (See Agency Policy for a description of Executive Leader.)

Partners: Leadership Team and Approving Authorities

Methods: The following is a list of techniques that should be used to communicate and collaborate with partners as part of this effort:

- *Collaborate* with Leadership Team during scheduled meetings to
  - Evaluate goals and tools against level of resources provided and develop alternatives to achieve goals and targets given potential resource limitations or constraints.

- Develop targets to achieve goals and measures to account for benefits and value.
- Develop flexible platform to manage fluctuating resources.
- *Communicate* with Approving Authorities and Stakeholders at meetings and in reports on
  - The goals and benefits of the process and identified deliverables to justify investments.
  - Adjustments that were made and contingency plans put in place to deal with future uncertainty.

**Products:** The following is a list of written documents, processes, data, events, and/or other benefits that will be produced as part of this effort:

- Agreements (financial and organizational), partnerships, and so on.
- Financial forecasts, funding and schedule for resources.
- Staffing plans.
- Training programs.
- Operating budget allocations.
- Strategic Business Plan.
- Annual/Quarterly Reports.

**Results:** The following are the results an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended effort outlined above:

1. Agency is equipped with adequate resources to achieve its goals.
2. Staff pride in the workplace.
3. Leadership confidence in the key players in the process.

## Management

**Goals:** The goals of the fourth major area of Leadership responsibility are to

1. Establish a corporate culture that supports a flexible, transparent, and accountable management team and encourages collaboration for successful and sustainable processes.
2. Empower the Leadership Team to manage the CACP process and own the process and results.
3. Improve and evolve the performance management principles of measure, analyze and act.

**Actions:** The following is a list of actions, activities, or tasks that should be completed as part of this effort:

- Define and communicate expectations that are tied to measuring performance and accounting for successes.
- Formulate achievable, predictable, and measurable targets that are consistent with the strategic direction of the agency, are tied to the ACP and are the product of a collaborative process.
- Develop expectations of performance and provide personnel with the resources and authority needed to achieve realizable targets.
- Empower staff to share knowledge and experience with others and to be open to other ideas and processes.
- Empower staff to learn from mistakes and manage change.
- Coordinate regularly with the Leadership Team on the policy, goals, and anticipated results.
- Convene regular meetings, reporting on results, adhering to meeting schedule and providing agendas.
- Hold Leadership Team and CMT accountable for a transparent and accountable process that allows for regular reviews and refinement of the process, projects, products and performance to achieve goals and targets.
- Hold Leadership Team and CMT accountable to collaborate on the process.
- Identify gaps and assess risks.
- Address any issues identified in change management plans.

- Refine performance metrics as necessary.
- Communicate results (benefits, success and improvement/change) to Stakeholders, Agency, and Approving Authorities.
- Recognize and celebrate success throughout the process.
- Participate in the development and endorsement of the CACP process.

When: Actions need to be completed quarterly and at regularly scheduled meetings with staff and Approving Authorities throughout the year.

Leader: Executive Leader (See Agency Policy for a description of Executive Leader.)

Partners: Leadership Team

Methods: The following is a list of techniques that should be used to communicate and collaborate with Partners as part of this effort:

- *Collaborate* with the Leadership Team in regularly scheduled meetings on
  - The status of the performance of the organization.
  - How changes will be managed and reconciled.
- *Communicate* with Approving Authorities in meetings and in reports on
  - Status of projects to Stakeholders.
  - Performance of the process and of staff engaged in the delivery of an accountable and transparent CACP process.
  - Notable achievements.
- *Communicate* to Agency and Stakeholders in public settings and in reports:
  - Status report on process, projects and staff performance.
  - Document changes and set expectations for managing process, projects and performance to reach stated goals and results.

Products: The following is a list of written documents, processes, data, events and/or other benefits that will be produced as part of this effort (see Appendix C for Model Documents and Appendix D for Sample Forms):

- Monthly meeting agendas and progress reports.
- Documented successes and failures.
- Performance appraisals.
- Achievements and performance awards.

Results: The following are the results an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended effort outlined above:

1. Agency culture of flexibility, accountability and transparency is established.
2. Platform to share successes and failures is established.
3. Framework to manage change and develop alternatives in a collaborative environment is achieved.
4. Staff buy in to the CACP process and make a commitment to deliver.
5. Approving Authorities and Stakeholders have increased confidence in the CACP process.
6. Institutionalized collaboration.

## CHAPTER 4 SUMMARY

The following topics were covered in this chapter:

- Environment for open communication,
- Shared value for leaders and managers,
- Flexible organizational structure focused on results,
- Partnerships and resources, and
- Culture of collaboration.

## Additional Resources

Williams, C., M. E. Derro, M. Jarvis, and L. Morris, *Executive Leadership at NASA: A Behavioral Framework*, NASA Office of the Chief Engineer (March 2010) 25 pp.



## CHAPTER 5

# The Nuts and Bolts: Development and Implementation

### CHAPTER 5 AT-A-GLANCE

*This chapter includes*

- Collaboration and communication techniques;
- Process outlining and calendar setting for the CACP process;
- Financial planning and management;
- System for merit-based project prioritization;
- Guidance to scope projects, develop cost estimates and schedule projects;
- Calculate operating benefit and impact of capital projects;
- Long-term business viability analysis; and
- Project risk assessments.

### Development Phase

The second component of the CACP process details the Nuts and Bolts of the process to develop and to implement the ACP. The first phase is Development, which is a systematic approach to multi-year financial and capital planning. This phase is critical because it defines the content of the ACP that will be executed by the agency. Sound capital planning as described herein is good organizational and financial management because

- Good infrastructure management and investment are needed to ensure the basic safety, security and operational efficiency of an airport.
  - Carefully planned infrastructure investment can maximize the economic potential of an airport.
- Prudent management of facilities and investments can reduce future operating costs, help avoid higher replacement costs, and minimize unexpected infrastructure crises.
  - A more systematic approach to multi-year financial and capital planning can also benefit the airport by improving the basis for intergovernmental cooperation decisions, by increasing opportunities for lower-cost financing, and by improving access to state and federal aid programs.

The five steps of the Development Phase described in this section are

- 1) *ACP Policy*: translate the agency's mission and goals into specific direction for the collaborative execution of the ACP process.
- 2) *Financial Planning and Management*: analyze and evaluate the financial metrics, define the financial models, and establish ACP financial policies.
- 3) *Capital Planning and Management*: generate the all-inclusive Project Request List (a draft list of all potential projects) including scope, cost, schedule and operating budget impacts for all projects.
- 4) *Programming*: prioritize and evaluate the Project Request List, run the financial model scenarios to analyze the list against agency goals and financial targets, and develop a draft ACP.
- 5) *Airport Capital Plan*: seek buy-in from all stakeholders and approval from the Approving Authorities.

The steps of the Development and Implementation Phases are described in more detail below and illustrated in Figure 6.

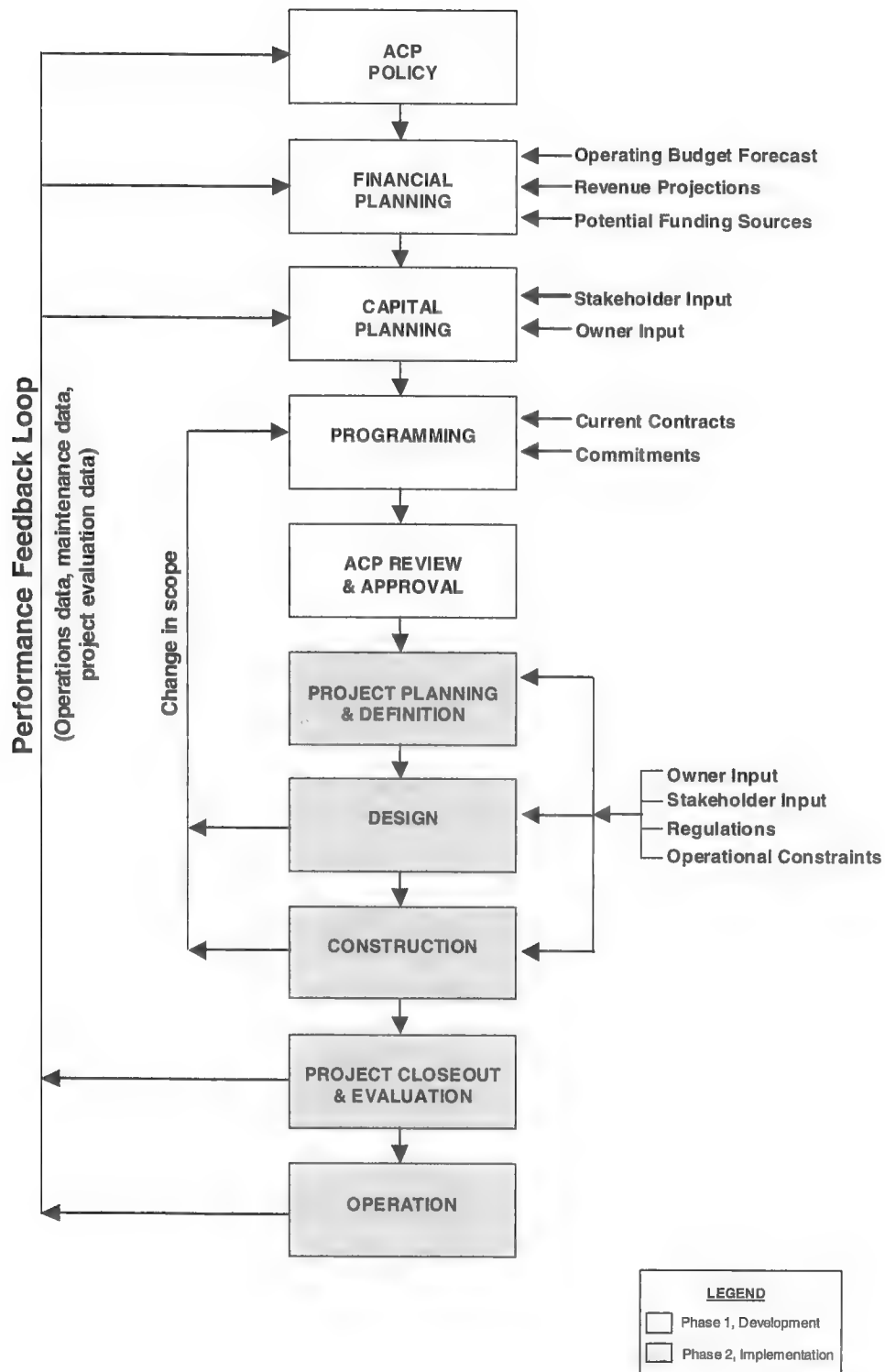


Figure 6. The development and implementation phases of the CACP process.

## Step 1: ACP Policy

Goals: The goals of Step 1 are to

1. Translate agency mission and goals into specific direction to agency staff for the collaborative execution of the ACP process.
2. Identify needs and establish priorities for the ACP.
3. Obtain buy-in from Approving Authorities and Internal and External Stakeholders to support the ACP.

Actions: The following is a list of actions, activities, or tasks that should be completed during this step:

- The CMT: Identify members of the CMT and their roles and responsibilities.
- Standards for Collaborating: Establish the parameters for communicating, coordinating, and collaborating among the Leadership Team and CMT.
- Responsibility Matrix: Develop a responsibility matrix that defines the roles and responsibilities of key participants. See Figure 4 in Chapter 3 for an example of a responsibility matrix.
  - The ACP Process: Define the goals and objectives of the ACP process, relate and connect them to the agency's mission and goals, outline the basic ACP process, highlight ACP initiatives, set priorities for the ACP process, and delineate the ground rules.
  - Financial Assumptions: Outline financial assumptions including goals for financial metrics such as airport rates and charges, funding and spending targets, revenue projections, and operating expense forecasts.
  - ACP Calendar: Set schedule/calendar for the ACP process. This can be developed with specific dates each year, as a list of activities by the month, or as a list of activities with start dates and duration. See page C-3 of Appendix C for Massport's example of a Capital Programming Calendar, page C-4 for BCAD's CIP Process flowchart and pages C-5 and C-6 for PHX's CIP Project Planning Process flowchart.

### Compelling Practice #5 Innovation for ACP Process

Broward County Aviation Department (BCAD) has "tollgates" between steps of the ACP development process at which the CIP Review Committee, consisting of all Division Directors, evaluates the project and allows it to move into the next phase of the ACP development process. These "tollgates" encourage evaluation and buy-in/consensus building among the departments that have a vested interest in a project as the ACP develops.

When: The ACP Policy should be issued before the ACP process begins.

Leader: Executive Leader (See Agency Policy in Chapter 4 for a description of Executive Leader.)

Partner: Leadership Team

Methods: The following is a list of techniques that should be used to communicate and collaborate with partners during this step:

- *Collaborate* with Partner in meetings and/or via collaboration technology to
  - Gain consensus on financial goals, including funding and spending targets, financial metric targets, revenue projections and operating expense forecasts.
  - Set the ACP Policy.
  - Sign partnership agreement committing to collaboration during development and implementation of the ACP. (See Agency Policy in Chapter 4.)
- *Communicate* with the agency in meetings and in writing on
  - The ACP policy.

Products: The following is a list of written documents, processes, data, events, and/or other benefits that will be produced during this step:

- Memo to Agency setting ACP Policy.
- Executed Partnership Agreements.

Results: The following are the results an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended step outlined above:

1. All parties involved in development of ACP reach consensus on the policy and commit to collaboration.
2. Expectations are set and ownership and accountability established among the Leadership Team and throughout the agency.

## Step 2: Financial Planning and Management

Goal: The goal of Step 2 is to develop a sound financial plan that standardizes financial calculations for the agency, sets reasonable targets for financial metrics, maximizes revenue and the economic potential of the airport, and enhances opportunities for lower-cost financing and access to state and federal aid programs.

Actions: The following is a list of actions, activities or tasks that should be completed during this step.

- Financial Targets: Evaluate and define targets for financial metrics and airport rates and charges such as cost per enplaned passenger, debt coverage, days of operating cash available, and operating ratio (operating expenses/operating revenues). These should be discussed and debated prior to evaluating a proposed ACP.
- Financial Model: Develop an airport financial model to assess methods for recovering operating expenses and capital expenditures using the approach outlined in the airline agreement or as imposed by the airport by ordinance or regulation.
- Budget Allocations: Define budget allocations so that project costs are appropriated to the proper budget allocation in individual project cost estimates developed in the next step.
- Standards for Financial Calculations: Develop standards for calculating the annual revenues and operating expenses to be used in analyzing the operating impact of a project.
- Revenue Projections: Generate a list of all potential revenue streams and limitations on their use.
- Operating Expenses: Generate a list of all operating expenses, including risks associated with line items that are uncertain or could change significantly.
- Potential Funding Sources: Generate a list of all potential funding sources including, but not limited to, cash reserves, Alternate Minimum Tax (AMT) and non-AMT airport bonds, passenger facility charges (PFCs: a local fee charged to each boarding passenger), customer facility charges (CFCs), local and state grants, FAA AIP grants (entitlement, discretionary and letter of intent programs), TSA grants, airport operating revenue and other potential funding sources.
- Financial Allocation Standards: Develop standards for the allocation of scarce financial resources across cost centers and goals, as well as trade-offs between capital and operating costs.
- Capital Plan Revisions: Develop a process for how and when the capital plan will be revisited if or when something major happens like the loss of a carrier, a major decline in air service or passengers, infusion of new funding, an airline bankruptcy, the advent of a recession, or when conditions change such that projects are delayed, deferred, or cancelled.

When: Financial Planning should happen at the beginning of the ACP process, before the Capital Planning step when the technical and financial estimating and analyses will be conducted.

## Leader: Finance Department

- Knowledge: The Financial Department Leader must understand the following:
  - Financial planning and management.
  - Airport finance, funding sources, finance codes and budget allocations.
  - Airport rates and charges and cost recovery methods.
  - Public finance.
  - Bond issuance.
  - Capital and operating budget development and management techniques.
  - FAA rules and regulations on AIP grants
  - Grant reimbursement policies and procedures.
  - Grant assurances.
- Skills: The Financial Department Leader must be skilled at the following:
  - Developing and running financial models and developing operating and capital budgets.
  - Calculating and assessing airport rates and charges.
  - Overseeing staff conducting financial planning activities.
  - Collaborating to engage partners.
  - Setting the example for others to follow.
  - Team building and being able to work productively with others.
- Potential Departments: The Financial Department Leader could be found in a department where 1) financial strategies are developed, 2) budgets are developed and monitored, and 3) funding sources are identified and secured. The Financial Department Leader might be in a finance department, an administrative and finance department, executive administration department or a properties and/or concessions department.

## Partner: CMT

Methods: The following is a list of techniques that should be used to communicate and collaborate with Partners during this step:

- *Collaborate* with the CMT in meetings and/or via collaboration technology to
  - Generate targets for financial metrics.
  - Generate standards for budget allocations to be used to develop all projects.
  - Generate standards for allocation of resources.
  - Develop a process for reevaluating the plan in the event of major financial crisis or hardship.
- *Communicate* with the Lead Technical Department in meetings and/or via collaboration technology:
  - Standards for revenue forecast and operating impact analysis to be used to develop all projects.
- *Communicate* with the Leadership Team in meetings and/or via collaboration technology:
  - The financial plan

Products: The following is a list of written documents, processes, data, events, and/or other benefits that will be produced during this step:

- A financial plan, including target for financial metrics, potential funding sources, standards for allocation of resources and process for reevaluating the plan in the event of major financial crisis or hardship.
- Financial model for use in Step 4 (Programming).
- Budget allocation definitions.
- Standards for calculating revenue and expenses of projects.
- Revenue projections.
- Operating expense forecast.
- Process for capital plan revisions.



**Result:** The following is the result an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended step outlined above:

1. A sound financial plan that standardizes financial calculations for the agency, sets reasonable targets for financial metrics, maximizes revenue and the economic potential of the airport, and enhances opportunities for lower-cost financing and access to state and federal aid programs.

### Step 3: Capital Planning and Management

**Goals:** The goals of Step 3 are to

1. Identify all new and revised projects for the maintenance and improvement of all facilities to meet the agency's goals and to accommodate priorities set by the ACP Policy in Step 1.
2. Quantify the scope, cost, schedule and operating budget impacts for all projects.

**Actions:** The following is a list of actions, activities or tasks that should be completed during this step:

- **Existing Condition Surveys:** Monitor facility conditions and conduct existing facility condition survey, as necessary.
- **Facility Needs Assessment:** Regularly assess facility needs with respect to maintenance and improvement.
- **Alternatives Analysis:** Identify and evaluate alternatives to meet identified facility needs. Evaluate how those alternatives will meet agency's goals.
- **Life-Cycle Cost Analysis (LCCA):** Conduct LCCA of feasible alternatives. LCCA assesses the total cost of facility ownership, including initial costs and operating costs. It enables an agency to compare alternatives from a net savings perspective and determine if higher initial investment will pay off in lower operating costs.
- **Project Definition Standards:** Establish and define standards for project phases and milestones to be used in developing budget estimates and project schedules.
- **Project Worksheets:** Develop a draft scope, cost, and schedule for the preferred alternatives. Prepare a descriptive worksheet for each project that contains all the critical project information such as project description, alternatives, cost, schedule, funding source, operating budget impact (revenue and expenses) contribution to agency goals and objectives, environmental impacts, and project risk factors. See pages D-5 and D-6 in Appendix D for a sample project data worksheet.
- **Operating Benefit:** Quantify the operating benefit and/or revenue associated with all projects, as appropriate.
- **Operating Impact:** Assess the operational impacts of the project (e.g., loss of auto or aircraft parking) and quantify the expense or financial impact associated with it. See page C-7 of Appendix C for PHX's CIP Project Impacts on Operating Budget form.
- **Long-Term Business Viability Analysis:** Analyze the long-term business viability of a project using Internal Rate of Return (IRR), Benefit-Cost Analysis (BCA) and/or Return on Investment (ROI) analyses, as appropriate. See page C-8 of Appendix C for BCAD's Business Case Form. The purpose of this analysis is to determine how the benefits (such as cost savings and offsetting revenues and/or user charges) justify the expense of a project.

#### Compelling Practice #6—Calculating CIP Project Impact to Operating Budget

PHX's Capital Budgeting Return on Investment (ROI) Analysis Form requires the project sponsor to quantify the "benefit drivers," which include savings in labor or expenses as well as projected revenue, and to compare that to the project costs to identify when the project will pay for itself.

In addition, PHX requires the project sponsor to fill out a "CIP Project Impacts on Operating Budget" form to quantify what labor and expense costs might be associated with the project once it is operational. Similar to the BCAD Project Business Case, these two elements are critical to understanding the long-term business viability of the project.

- **Cost Centers:** Categorize projects by cost centers or facility type where cost recovery for operating and capital expenditures for the facilities are similar (e.g., airfield, terminals, parking, etc.) in a manner that helps staff understand what is being funded and what types of trade-offs might need to be made. Examples of categories include
  - Normal replacement, maintenance, state of good repair, system improvement and expansion.
  - Airside, landside, and nonaeronautical.
  - Safety and security, aeronautical, sustainability, and community mitigation.
  - Eligibility by funding sources such as bonds, retained earnings, PFCs, CFCs, and so forth.
- **Major versus Smaller Capital Programs:** Differentiate between major capital improvement programs and diverse programs that include a mix of renovation and rehab work and smaller initiatives. Massive programs like major airport expansion programs will have considerable management focus, will be funded over a series of years and bond issues, and will typically track the same set of a few large projects over 3 to 6 years. Other programs will have a long list of diverse smaller projects in various cost centers with only one or two larger projects. These types of programs require numerous trade-offs and funding shifts as the rehab projects encounter unforeseen conditions that increase costs and force staff to find new funding sources.
- **List of Proposed Projects:** Generate the Project Request List, a comprehensive list of projects that staff have requested be included in the ACP.

When: Capital Planning should happen at the beginning of the ACP process after the financial plan has been developed, before the Programming step when the technical and financial analyses will be conducted.

Leader: Lead Technical Department

- **Knowledge:** The Technical Department Leader must understand the following:
  - Planning techniques and tasks.
  - Phases of design and the sequencing of tasks.
  - Horizontal and vertical construction.
  - Project bidding.
  - Cost estimating techniques and (software) tools.
  - Sequencing of projects and developing project schedules.
  - Contracting tools and techniques for planning, design and construction.
  - Operation and maintenance of an airport and its facilities.
  - Extensive knowledge of planning, technical and engineering principles, techniques, methods, protocols and precedents.
- **Skills:** The Technical Department Leader must be skilled at the following:
  - Developing schedules and budget/cost estimates and using the software tools to create them.
  - Defining the scope of project.
  - Preparing a cost estimate for planning study, design or construction project.
  - Negotiating contracts for scope, cost and schedule.
  - Overseeing staff conducting planning, design and construction activities.
  - Collaborating to engage partners.
  - Setting the example for others to follow.
  - Team building and ability to work productively with others.
- **Potential Departments:** The Technical Department Leader could be found in a department where 1) projects are scoped, planned, designed and/or constructed; 2) budgets or costs are estimated; and 3) schedules are prepared. The Technical Department Leader might be in an engineering department, planning department, capital programming/planning department, or capital management department.

Partner: CMT

Methods: The following is a list of techniques that should be used to communicate and collaborate with Partners during this step:

- *Collaborate* with the CMT by means of in-person meetings and/or via collaboration technology to
  - Generate standards for project milestones to be used to develop all projects.
  - Create categories of projects for the ACP.
  - Generate a list of all projects proposed for the maintenance and improvement of all facilities.
  - Reach consensus on the Project Request List to be evaluated in the next step.
- *Communicate* with Finance Department by means of in-person meetings and/or via collaboration technology on
  - The scope, cost, schedule and operating costs for all proposed projects for discussion once projects are identified. The Lead Technical Department will revise, as necessary.
  - On an ongoing basis throughout the process as scope, cost and schedule are revised and updated.
- *Communicate* with Finance Department and CMT by means of in-person meetings and/or via collaboration technology on the
  - Project Request List.

Products: The following is a list of written documents, processes, data, events, and/or other benefits that will be produced during this step:

- The Project Request List categorized by projects, by program, by facility, by funding source, and by fiscal year.
- Completed project data worksheet that describes the scope, cost and schedule for each project on the Project Request List, updated and/or revised when necessary.
- Existing facility condition survey reports.
- LCCA reports.
- Alternatives Analysis reports.
- Completed CIP Project Impact on Operating Budget forms.
- Long-Term Business Viability Analyses using ROI, IRR and/or Benefit Cost Analysis (BCA) methods, as appropriate.

Result: The following are the results an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended step outlined above:

1. All parties involved in development of the Project Request List agree on the content of the Project Request List before the Programming step begins.

## Step 4: Programming

Goals: The goals of Step 4 are to

1. Analyze, evaluate and prioritize the Project Request List against agency goals and objectives, funding targets, revenue and operating expense projections, and rates and charges goals, using defined operational, financial and technical criteria.
2. Produce a draft ACP.

Actions: The following is a list of actions, activities or tasks that should be completed during this step:

- Roles and Responsibilities: Define the roles and responsibilities of the two Leaders (Financial and Lead Technical Department) for this step. The two Leaders should agree on a commitment to work together on the actions outlined in this step.

- **Prioritization Factors:** Translate strategic direction provided in Step 1 above into prioritization factors, planning and evaluation criteria, and performance indicators. See page C-14 of Appendix C for PHX's CIP Priority Ranking Worksheet. Categories of prioritization factors and/or evaluation criteria may include
  - Regulatory mandate—is it required to meet a code or regulatory compliance directive?
  - Safety—will it improve or enhance safety?
  - Security—will it improve or enhance security?
  - Level of service—will it improve customer service or enhance facility capacity?
  - Revenue generation/cost reduction—will it create revenue or reduce a current operating expense?
  - Environmental or community impacts—is it a commitment for environmental or community mitigation? Will it improve community relations? Might it cause negative environmental or community impacts?
  - Sustainable development—is it an initiative to meet sustainable development or Leadership in Environmental Design (LEED) goals?
  - Asset preservation/maintain existing facilities—is it required to preserve or maintain an existing facility?
  - Goals and objectives—does it contribute to meeting the agency's defined goals and objectives?
  - Risk factors—are there any environmental, financial, schedule, or operational risk associated with this project?
- **Project Rating Criteria:** Qualitatively (low, medium, high ratings) and/or quantitatively (numerical ratings such as "100, 50, 30" or "1 to 10") to prioritize, rank or rate the project.

### **Compelling Practice #7**

#### **Project Rating and Prioritization**

The Port Authority of New York and New Jersey (PANYNJ) Aviation collaborative project rating process is conducted by a committee of staff from the Aviation, Project Management and Engineering departments. It is a four-step process using an Excel spreadsheet that includes:

- 1) Rating the importance of the asset that calculates a weighted "Importance Factor" (IF);
- 2) Rating the condition of the asset that calculates a "Condition Index" (CI), which is the average of the life cycle and condition ratings;
- 3) Calculating priority and cost effectiveness factors to produce a "Priority Factor" (PF) that equals the IF times the CI, and a "Budget Effectiveness Factor" (BEF) that takes into account the total project cost minus the cost recovery; and
- 4) Prioritizing the projects based on their "Priority Factor" and "Budget Effectiveness" Ratio.

The process uses weighted rating scales from 1 to 5 in criteria categories that include the

- 1) Importance of the asset, including life safety, operational impact, customer service impact, and revenue impact in step one above and
- 2) Condition of the asset, including life cycle criteria, condition criteria, serviceability, level of maintenance required and maintainability in step two above.

ects in the Project Request List using operational, financial, technical, environmental, and risk criteria. This will facilitate difficult decision making when funding becomes constrained or limited.

- **Prioritize Projects:** Analyze, evaluate and prioritize the projects on the Project Request List.
- **Financial Modeling:** Run financial models of various project and funding scenarios. This is an iterative process, so the model should be rerun each time a scenario changes.
- **Operating Budget Impact Analysis:** Determine the overall impact each ACP scenario will have on the operating budget and on airport rates and charges. Recalculate the impact each time the scenario is revised.
- **Trade-Off Analysis:** Conduct a trade-off analysis for all projects—choose between projects (e.g., can discretionary projects be delayed in order to afford projects that address other urgent facility needs?), sequence projects according to urgency (i.e., what projects “need” to be done first?), and sequence projects according to financial impact (i.e., can the project order be rearranged to increase or decrease a financial impact within or between fiscal years?).
- **Additional Financial Modeling:** Continue to run financial models of various project and funding scenarios until the airport reaches an ACP that advances the agency’s goals and objectives, accommodates the priorities and initiatives set by the ACP Policy in Step 1, is affordable, and meets the financial goals or metrics defined in the agency’s strategic financial plan and/or in the ACP Policy issued in Step 1.

**When:** Programming should occur after the Financial and Capital Planning is completed and prior to vetting it with stakeholders and presenting it to the Approving Authority for approval and/or authorization.

**Leaders:** Finance and Lead Technical Departments (See Step 2 of the Development phase for a description of a Finance Department and Step 3 of the Development phase for a description of a Lead Technical Department.)

**Partner:** CMT

**Methods:** The following is a list of techniques that should be used to communicate and collaborate with Partners during this step:

- *Collaborate* with the CMT in developing prioritization factors, planning and evaluation criteria and performance indicators.
- Discuss the prioritized list of projects in the Project Request List.
- Conduct trade-off analysis.
- Reach consensus on the ACP to be vetted and approved in the next step.
- *Collaborate* between the two Leaders (Financial and Lead Technical Departments) to
  - Define roles and responsibilities of each.
  - Develop process to resolve conflict and/or disagreement.
  - Work together to execute the tasks of this step.
- *Communicate* in meetings and in writing with the Executive Leader and Leadership Team on
  - Prioritized Project Request List.
  - The draft ACP.

**Products:** The following is a list of written documents, processes, data, events, and/or other benefits that will be produced during this step:

- Defined roles and responsibilities for Step Leaders.
- List of formalized, comprehensive prioritization factors.
- Prioritized Project Request List.



### Compelling Practice #8 Project Execution Flexibility

Massport includes an “unfunded” list of projects in the ACP that is needed but did not have the financial resources to fund. This “unfunded” list is voted and authorized by the Board of Directors every year. During the fiscal year, a project from the “unfunded” list can be added to the “funded” list by the Director of Capital Programs and the Director of Finance if another project is delayed or canceled, as long as the funding source is the same and adequate funds are available. This practice enables Massport to be nimble and flexible with executing projects when unforeseen situations delay or defer projects.

- Spreadsheets that show the various funding scenarios from the financial modeling.
- A memo describing the trade-offs made as part of the programming that describes what decisions were made, how they were made, and which projects were not funded and why.
- The draft multi-year ACP that includes all projects proposed to be funded with funding sources by fiscal year and its impact to the Operating Budget.

Result: The following is the result an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended step outlined above:

1. All parties involved in the ACP process agree on the draft ACP to be vetted and approved in the next step.

### Step 5: Airport Capital Plan

Goal: The goal of Step 5 is to obtain buy-in from all stakeholders and obtain approval or authorization from Approving Authorities.

Actions: The following is a list of actions, activities or tasks that should be completed during this step:

- ACP Meets Goals and Objectives: Document how the proposed draft ACP advances the agency’s goals and objectives, accommodates the priorities and initiatives set by the ACP Policy in Step 1, is affordable and meets the financial goals or metrics defined in the agency’s strategic financial plan developed in Step 2.
- Trade-Off Documentation: Document the ACP process that was followed and major decisions (trade-offs) made during the ACP process.
- Unfunded Projects: Document those projects that were not funded in the current draft ACP and why.
- ACP Funding and Financial Plan: Document how the draft ACP will be funded and describe how the agency arrived at that financial plan, including funding sources (bonds, cash, PFCs) and what impact the proposed ACP will have on the airport’s financial metrics [e.g., cost per enplaned passenger, debt coverage, days operating cash and operating ratio (operating expenses/operating revenues)].

### Compelling Practice #9 Stakeholder Participation

The Metropolitan Washington Airport Authority (MWAA) has an on-site airline coordinator that is funded by the carriers. This individual is co-located with the Planning and Engineering departments so that when MWAA has an issue that needs input from the carriers, the coordinator can obtain the input and give the feedback to MWAA very quickly. This practice expedites MWAA’s ability to get feedback from the carriers when they need it.

- Operating Budget Impact: Document how the draft ACP will impact the operating budget and rates and charges.
- Stakeholder Input: Vet the draft ACP with Internal Stakeholders such as the leadership of the operating departments (e.g., Aviation), as necessary, External Stakeholders such as the tenants, governmental agencies, as necessary, and Approving Authorities prior to seeking final approval.
- ACP Approval: Seek approval of the ACP from Approving Authorities.

When: Approval of the ACP should be sought when the ACP is balanced, and prior to beginning implementation.

Leader: Executive Leader (See Agency Policy in Chapter 4 for a description of Executive Leader.)

Partner: Leadership Team and CMT

**Methods:** The following is a list of techniques that should be used to communicate and collaborate with Partners during this step:

- *Collaborate* in meetings and/or via collaboration technology with the Leadership Team and CMT to
  - Discuss the draft ACP.
- *Collaborate* in meetings and/or via collaboration technology with the Leadership Team, CMT and Approving Authorities to
  - Reach consensus and approve the draft ACP.
- *Communicate* in meetings and in writing with the Agency on
  - The approved ACP for implementation.
- *Communicate* using press releases and website postings with the general public on
  - The approved ACP for informational purposes.

**Product:** The following is a list of written documents, processes, data, events, and/or other benefits that will be produced during this step:

- The ACP Funding and Financial Plan.
- The multi-year ACP.

**Result:** The following is the result an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended step outlined above:

1. The agency publishes a multi-year ACP that all Stakeholders agree with, support and are willing to implement.

## Implementation Phase

The second phase of the Nuts and Bolts component of the CACP process is Implementation, which is the road map for project execution, from project planning and definition through design, construction and ultimately operation. This section outlines the procedures recommended for the successful execution of projects. Defining and standardizing project implementation functions and procedures as described herein are valuable because an agency can

- Repeat good project delivery methods and techniques every time, regardless of the department or individual managing the project.
- Make use of lessons learned from other project delivery experiences and improve the processes and procedures over time.
- Reduce project delivery time because agency staff will not have to create or define a new process every time a project is implemented.
- Reduce project costs by increasing efficiency and effectiveness.
- Improve and standardize quality.

The five steps of the Implementation Phase described in this section are

- 1) *Project Planning and Definition:* Define in detail the scope, cost, schedule, funding source and operating impact of the projects.
- 2) *Design:* Design the project to meet the owner's needs within the scope, cost and schedule constraints developed during the project definition phase, such that it meets the agency's goals and objectives.
- 3) *Construction:* Build the project to meet the owner's needs within the scope, cost and schedule developed in the design step, such that it meets the agency's goals and objectives.
- 4) *Project Closeout and Evaluation:* Quickly and effectively close out the project and evaluate the performance of the staff and departments involved in the planning, design and/or construction of a project/facility.

- 5) *Operation*: The owner successfully operates the facility using the features and elements included in the design and constructed into the facility for the benefit of the owner consistent with the agency's mission and goals.

The steps of the Implementation Phase are described in more detail below and are illustrated in Figure 6 earlier in this Chapter.

## Step 1: Project Planning and Definition

Goal: The goals of Step 1 are to





1. Develop more detail on the scope, cost, schedule, funding source and operating impact of the projects included in the approved ACP before design, construction and/or implementation of the projects begins.
2. Establish an owner's expectations for project scope, budget and schedule, which will in turn provide guidance to the Leader who is managing the project team and stakeholders during the life of the project.

Actions: The following is a list of actions, activities or tasks that should be completed during this step:

- **Identify Stakeholders**: Identify major players and stakeholders internal and external to the agency, their interest in the project, and their roles and responsibilities.
- **Stakeholder Input**: Solicit and obtain input and feedback from owner and other appropriate stakeholders on project scope and functional requirements at the beginning of the project definition phase and throughout the project planning process.
- **Goals and Objectives**: Define project goals and objectives with the owner and other appropriate stakeholders at the beginning of the process. These will be used as decision criteria during the alternatives analysis described below.
- **Procure Consultant**: Determine if the agency has internal resources to execute a project. If not, procure professional services, as necessary.
- **Manage Consultant**: Manage professional services firm, if necessary.
- **Problem Definition**: Examine and determine the cause of the problem that is driving the need for the project. Assess whether the project is really bigger or smaller than originally defined in the Development Phase. Assess the problem from multiple perspectives. For example, evaluate a terminal improvement project from the perspectives of the traveling public, the tenant and the maintenance department.
- **Project Scope Development**: With the owner and appropriate stakeholders, develop project scope in more detail to address the problem defined above. Ensure the project scope will meet the stakeholders' needs and the agency's goals and objectives. Reconcile the owner's needs and expectations if they are not in synch. Define the project benefits, objectives, approach, effects and interrelationships.
- **Alternatives Development**: Create a list of all possible solutions that address the defined problem and of options to execute the project that meet the agency's goals and objectives, even those that may seem "out of the box" at first. Narrow the list down to the best alternatives that warrant formal assessment.
- **Alternatives Analysis**: Evaluate the list of best project alternatives against the decision criteria. Include a quantitative analysis of expenses, cost savings and risks, a qualitative analysis of customer needs, case studies of alternatives implementation at other airports, and the economic and operational feasibility of each alternative.
- **Project Delivery Alternatives**: For each project, evaluate project delivery options, identify the most appropriate option and document the logic behind the option selected. This decision will be driven by the project aspect of greatest importance, scope, schedule or budget.

See the Additional Resources section at the end of this chapter for documents to assist with this task.

- **Additional Data:** Gather supplemental information to support project definition, budget estimation, project schedule and analysis of operating budget impact and long term business viability of a project, if required.
- **Budget Estimate:** Prepare a more detailed budget estimate using the detailed scope developed in this step. At a minimum, budget estimates should include categories as shown below in Figure 7.
  - Budget/Cost estimating techniques for soft costs include
    1. Simply calculating each cost as a percentage of construction, which will vary based on size and complexity of the project.
    2. Calculating the number of drawings required for construction documents and multiplying that times labor hours required to produce one sheet.
    3. An agency's historic fees for similar projects or projects of similar size and complexity.
    4. Historical median fee curves, scales and graphs published by organizations such as the American Society of Civil Engineers.
  - Estimates of hard costs can be calculated using
    1. Averages (by unit price) calculated from an agency's historical construction bids (averaged over a 3- to 5-year period in which the bidding climate remained relatively unchanged).
    2. Unit prices for materials and equipment, assembly rates, square footage costs, labor and productivity rates, and overhead and markup data from sources such as RSMeans Construction Cost Data Books published by Reed Construction Data annually.
- **Schedule:** Prepare a more detailed schedule using the more detailed scope developed in this step. The schedule should include everything that is needed to successfully execute a project, including
  - A list of functional, technical, administrative, testing and training tasks by project phase that need to be completed in an ordered sequence with begin and end dates, duration, and resources needed (including personnel, equipment and funding).
  - The interdependencies between tasks (e.g., if one task cannot begin until another task ends).
  - Key project meetings (with project team, owner and stakeholders) and important communications (regular status updates, milestone updates, updates to approving authorities, etc.), at the appropriate times.

<b>Soft costs</b> 	Include pre-design and planning services, survey, testing and investigations, basic design services, construction management and inspection services, environmental analysis and permitting, police or fire details, professional liability insurance, financing costs, advertising, legal fees, reimbursable expenses such as travel or printing, and post-construction expenses such as fees for building commissioning.
<b>Hard costs</b> 	Include construction, furniture and equipment such as communication and/or computer systems.
<b>Escalation</b> 	Account for inflation for projects that will be completed at a future date.
<b>Contingency</b> 	Account for changes to project cost as a result of insufficient knowledge and/or unforeseen challenges. Can be calculated as a percentage of the entire project budget or of the construction cost estimate, which will decrease over time as more detail becomes available during design.

**Figure 7. Categories for budget estimates.**



The schedule can be as simple as a table or a bar graph timeline produced with Microsoft Excel or as sophisticated as a Gantt chart produced with Microsoft Office Project or a cost-loaded schedule produced with Primavera P6. All are scalable to any size project for any size organization.

- **Operating Budget Impact:** Calculate the approximate impact a project will have on the operating budget and airport rates and charges. New and expanded facilities require additional labor, materials, energy and equipment to operate and maintain as well as debt service for bonds to finance the project. These are all impacts to the annual operating budget that must be quantified and which will impact airport rates and charges.
- **Long-Term Business Viability Analysis:** Calculate the approximate long-term business viability of a project. This can be calculated by doing an IRR, ROI, and BCA or other analyses used to determine the long-term business viability of a project. See pages C-8 to C-13 of Appendix C for BCAD's Business Case Form. The purpose of this analysis is to determine how the benefits (such as cost savings and offsetting revenues and/or user charges) justify the expense of a project.
- **Potential Funding Sources:** Evaluate all potential funding sources and identify the optimum funding sources. Funding sources could include, but are not limited to, cash reserves, AMT and non-AMT airport bonds, PFCs, CFCs, local and state grants, FAA AIP grants (entitlement, discretionary and letter of intent programs), TSA grants, airport operating revenue and other potential funding sources. Every airport uses a different combination of these funding sources depending on the individual airport's financial situation and the type of project being considered. Small airports (GA, non-hub and small-hub) are more dependent on AIP grants than large- or medium-hub airports. The larger airports, where projects tend to be more expensive, are more likely to participate in the tax-exempt bond market or finance capital projects with PFCs.
- **Project Risk Assessment:** Define and assess the risks associated with the scope, cost and schedule developed for the project and develop measures to mitigate those risks, including calculating a contingency fund, if necessary. A project risk assessment consists of risk identification followed by probability and impact assessment. There are five steps in a project risk assessment as described below:
  1. The project team, the owner and the appropriate stakeholders together identify all the likely sources of risk affecting quality, safety, performance, technology, project duration, and cost that could occur on a project and the impact these risks could have on achieving the project goals and objectives. A Risk Register is created to monitor and track those risks. A Risk Register is a table of all the risks affecting the project and the impact they could have on the project. The register is a spreadsheet that calculates a risk rating for each risk that is equal to the likelihood the event will happen (likely, possible or remote) multiplied by the severity of the impact (from none to severe or catastrophic).
  2. Assess the likelihood (e.g., probability) of each event happening.
  3. Estimate the Minimum, Most Likely and Maximum for the cost and time of each risk identified. These elements, in conjunction with the probability of the event happening (Step 2), are needed to complete the Monte Carlo simulation and generate the Risk Register that ranks the risks by a combination of highest probability and impact on the project, high to low. The simulation further computes the overall project upset cost and time to complete based on the information provided. This provides a basis for the level of contingency that may be needed to accommodate these events should they not be mitigated.
  4. Prepare a Mitigation and Management Plan for each significant risk item to eliminate the risk as early as possible, minimize risk that cannot be completely eliminated, and address any new risks that become apparent throughout the project.

### Compelling Practice #10 Project Risk Assessments

PANYNJ conducts project risk assessments regularly. PANYNJ uses risk assessments to allocate project risk and establish contingencies for projects so that funds are available in the event the cost goes up or the schedule gets extended or delayed.

5. Formalize the monitoring of the Plan into a risk management activity, establish systematic reviews in the project schedule, establish metrics, and track your top 10 risks week by week.
- **Coordination:** Solicit and obtain input and feedback from the owner and other appropriate stakeholders throughout the project planning and definition process.
  - **Invoices:** Review and approve invoices and change orders for the consultant(s). Coordinate with Finance to ensure proper coding for funding and cost recovery.
  - **Cash Flow:** Prepare and submit realistic cash flow projections on project expenditures to the Finance Department, quarterly at a minimum and monthly where possible.
  - **Progress Reporting:** Track and report on progress of project planning and definition to the appropriate stakeholders monthly. See page D-7 of Appendix D for a sample project status report.
  - **Final Funding Approval:** Identify potential funding sources and amounts and confirm funding with the Finance Department before proceeding to the next step, Design.
  - **Authorization:** Obtain authorization to proceed to next step from the appropriate party or parties (Implementation Step 2: Design).

**When:** Project planning and definition occurs after the ACP is approved and prior to design, construction and/or implementation of a project in the ACP.

**Leader:** Lead Technical Department (See Step 3 of the Development phase for a description of a Lead Technical Department.)

**Partner:** CMT

**Methods:** The following is a list of techniques that should be used to communicate and collaborate with Partners during this step:

- *Collaborate* in meetings and/or via collaboration technology with
  - The owner to define and agree upon the scope of the project.
  - Other Technical Departments to refine and agree upon the project definition, as needed.
  - The Finance Department to discuss and confirm project funding.
- *Communicate* with the CMT in writing on
  - A project definition memorandum or manual prior to design commencing in the next step, as appropriate.
  - A memo that identifies the Project Manager and his or her role and responsibilities.
- *Communicate* with Finance in writing to
  - Transmit cash flow projections.
- *Communicate* with the Executive Leader in writing on
  - Documentation required to seek approval from Approving Authorities for expenditures like project authorizations

**Products:** The following is a list of written documents, processes, data, events, and/or other benefits that will be produced during this step:

- A memo identifying the project manager, when appropriate.
- Defined goals and objectives developed collaboratively with stakeholders for each project in the ACP.
- A revised Project Scope for each project in the ACP.
- Contract(s) with professional services firm, as required.
- Alternatives Analysis reports.
- A revised Project Budget Estimate for each project in the ACP.
- A revised Project Schedule for each project in the ACP.
- Completed CIP Project Impact on Operating Budget forms.
- Long-Term Business Viability Analyses using ROI, IRR and/or BCA methods, as appropriate.
- Project Risk Assessment for each project in the ACP.



- A project definition/description form or memorandum for each project in the ACP (a project definition manual may be needed for larger, more complex projects).
- Monthly project status reports.
- Monthly cash flow projections.

Result: The following is the result an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended step outlined above:

1. All parties involved in defining the project agree upon the scope, cost, funding and schedule for the project before beginning design in the next step.

## Step 2: Design

Goal: The goal of Step 2 is to design a project that meets the owner's needs and expectations within the scope, cost and schedule developed during the project definition phase (Implementation Step 1), and that meets the agency's goals and objectives.

Actions: The following is a list of actions, activities or tasks that should be completed during this step:

- Stakeholder Input: Solicit and obtain input and feedback from the owner and other appropriate stakeholders on project scope and functional design requirements at the beginning and throughout the design process.
- Procure Consultant: Determine if the agency has internal resources to design a project. If not, procure professional design services, as necessary.
- Manage Consultant: Manage professional design services firm, if necessary.
- Partnering: Partner with professional design services firm, owner and Stakeholders, if desired.
- Project Management Plan: For larger projects, develop a project management plan that outlines the project's goals, the technical requirements, roles and responsibilities, resources, budget and schedule.
- Quality Control: Develop a quality control (QC) plan that outlines the QC objectives, the QC manager and his or her responsibilities, the types and frequency of QC reviews, and the required QC reporting and documentation required for successful completion of the design activities.
- Design: Design project with professional design services firm to meet the needs of the owner and meet the agency's goals and objectives.
- Value Engineering: Evaluate and analyze selected materials, systems, processes and equipment during design to ensure the required functions are being realized at the lowest total cost of ownership, as needed.
- Risk Management: As design progresses, revisit the Risk Management Plan to track and monitor the risks identified in Implementation Step 1 above, update the Risk Register and Risk Management Plan as needed, and revise contingency funding amounts, as appropriate.
- Change Management: Monitor and track changes to the scope, budget estimate and schedule during design and document the reason for the changes. Changes need to be reviewed during regular meetings and evaluated against goals, targets and performance metrics (see Chapter 6).
- Budget Estimate: Prepare a more detailed budget estimate based on more detailed design. See the details related to budget estimating included in Implementation Step 1.
- Schedule: Prepare a more detailed schedule based on more detailed design. See the details related to scheduling included in Implementation Step 1.
- Coordination: Solicit and obtain input and feedback from the owner and other appropriate stakeholders throughout the design process.
- Invoices: Review and approve invoices and change orders for the consultant(s). Coordinate with Finance to ensure proper coding for funding and cost recovery.

- **Cash Flow:** Prepare and submit realistic cash flow projections on project expenditures to the Finance Department, quarterly at a minimum and monthly where possible.
- **Progress Reporting:** Track and report on progress of design (scope, cost and schedule) to the appropriate stakeholders monthly. See page D-7 of Appendix D for a sample project status report.
- **Monitoring Progress:** Monitor, track and refine scope, budget estimate and schedule as design progresses.
- **Document Control:** Follow and administer document control procedures. Agencies without an archiving or document management policy should develop one in accordance with applicable federal and state requirements and/or guidelines that includes policies for both electronic and hard copy documents.
- **Final Funding Approval:** Confirm funding source(s) and amount(s) with the Finance Department before proceeding to the next step, Construction. See the details related to funding sources included in Implementation Step 1.
- **Authorization:** Obtain authorization to proceed to next step from the appropriate party or parties (Implementation Step 3: Construction).
- **Designer Evaluation:** Evaluate the designer for the design services provided. See page D-8 to D-9 of Appendix D for a sample designer evaluation form for design services.

**When:** Design should begin after the project has been well defined, funding is secured, and before beginning construction.

**Leader:** Lead Technical Department (See Step 3 of the Development phase for a description of a Lead Technical Department.)

**Partner:** CMT

**Methods:** The following is a list of techniques that should be used to communicate and collaborate with Partners during this step:

- *Collaborate* in meetings and/or via collaboration technology with
  - The owner to refine and agree upon the project scope and functional design requirements.
  - Other Technical Departments to refine and agree upon the design of projects, as needed.
  - External Stakeholders to solicit input and feedback, as necessary.
  - Finance Department to discuss and confirm project funding.
- *Communicate* with the CMT in writing on
  - The design documents once complete and prior to beginning project bidding and construction.
- *Communicate* with Finance in writing on
  - Cash flow projections and provide any other financial information and required data as needed.
- *Communicate* with the Executive Leader in writing on
  - Documentation required to seek approval from Approving Authorities for expenditures such as project authorizations.

**Products:** The following is a list of written documents, processes, data, events, and/or other benefits that will be produced during this step:

- Contract(s) with professional services firm(s), as required, and contract amendments if scope changes.

### Compelling Practice #11 Project Authorization

Massport has individual Project Budget Board authorizations that establish a complete project budget for all expenses related to a project, including all project phases. Once this project budget is authorized by the Board of Directors, the Capital Programs department has the flexibility to move funds between project phases to cover overruns with underruns as long as the total project budget does not go up and as long as those overruns do not trigger other defined Board authorization requirements.

- Project Management Plan.
- QC Plan.
- Final budget/cost estimate.
- Final project schedule.
- Monthly project status reports.
- Monthly cash flow projections.
- Funding Plan.
- Document control procedures.
- Design documents for construction bidding.
- Memo that documents the changes made during the design process, including agreements reached on how any cost increases would be funded as well as the financial impacts that funding change may have on other projects in the ACP.
- Designer evaluation.

Results: The following are the results an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended step outlined above:

1. All parties involved in designing the project agree upon the scope, cost, funding and schedule for the project before beginning in the next step, construction.
2. All parties involved in the design agree upon what other projects, if any, are delayed, deferred or reduced in scope in order to afford the project if the project as designed exceeds the original project funding in the approved ACP.

### **Step 3: Construction**

Goal: The goal of Implementation Step 3 is to build a project that meets the owner's needs within the scope, cost and schedule developed in the design step, and that meets the agency's goals and objectives.

Actions: The following is a list of actions, activities or tasks that should be completed during this step:

- Procure Consultant: Determine if the agency has the internal resources to oversee the construction of a project. If not, procure a professional construction oversight firm, as necessary.
- Manage Consultant: Manage the professional services firm to oversee construction, if necessary.
- Construction Procurement: Procure and contract for construction services with a contractor to build the project through appropriate bidding process.
- Contractor Management: Manage and oversee the contractor and administer the contract.
- Partnering: Partner with the owner, Stakeholder, designer, professional services firm and the contractor, if desired.
- Quality Control: Develop a QC Plan that outlines the QC objectives, the QC manager and his or her responsibilities, the types and frequencies of QC reviews and the required QC reporting and documentation required for successful completion of the construction activities.
- Risk Management: As construction progresses, revisit the Risk Management Plan to track and monitor the risks identified in Implementation Step 1 above, update the risk register and Risk Management Plan as needed, and revise contingency funding amounts, as appropriate.
- Change Management: Monitor and track changes to the scope, cost to complete and schedule during design and document the reason for the changes. Changes need to be reviewed during regular meetings and evaluated against goals, targets and performance metrics (see Chapter 6).
- Field Inspection: Identify and assign field staff for overseeing the contractor in the field. Maintain the appropriate number of staff in the field to adequately oversee the contractor. Document daily in a Field Log.

- **Job Meetings:** Conduct job meetings, ensuring that the appropriate stakeholders are invited and participate. Document action items and decisions made in meeting minutes.
- **Operations Meetings:** Conduct meetings to discuss project aspects and issues that affect facility operations, ensuring that the appropriate stakeholders are invited and participate. Document action items and decisions made in meeting minutes.
- **As-Built Drawings:** Ensure project as-built drawings are being maintained and regularly submitted to the designer.
- **Coordination:** Coordinate with the owner and the appropriate Internal and External Stakeholders during construction, as necessary.
- **Progress Reporting:** Track and report on progress of construction (scope, cost and schedule) to the appropriate stakeholders monthly. See page D-7 of Appendix D for a sample project status report.
- **Invoices:** Review and approve invoices and change orders for consultant and contractor. Coordinate with Finance to ensure proper coding for funding and cost recovery if budget increases.
- **Design Changes:** Address changes in design, as needed. Review and approve consultant contract amendments, as needed. Coordinate with Finance to ensure proper coding for funding and cost recovery if budget increases.
- **Change Orders:** Address changes in field conditions, as needed. Review and approve change orders for contractor, as needed. Coordinate with Finance to ensure proper coding for funding and cost recovery if budget increases.
- **Safety and Security:** Develop a Safety and Security Plan to ensure contractor maintains a safe and secure jobsite.
- **Cash Flow:** Prepare and submit realistic cash flow projections on project expenditures to the Finance Department, quarterly at a minimum and monthly where possible.
- **Document Control:** Follow and administer document control procedures.
- **Commissioning:** Develop and implement facility commissioning schedule and methods.
- **Designer Evaluation:** Evaluate the designer for the construction phase services provided. See pages D-10 and D-11 of Appendix D for a sample designer evaluation form for construction phase services.

**When:** Construction should begin after the project has been designed, funding is secured, appropriate bidding is conducted, and before the facility is turned over for full operation.

**Leader:** Lead Technical Department (See Step 3 of the Development phase for a description of a Lead Technical Department.)

**Partner:** CMT

**Methods:** The following is a list of techniques that should be used to communicate and collaborate with Partners during this step:

- *Collaborate* in meetings and/or via collaboration technology with
  - The owner to discuss construction issues, to agree upon decisions to address unforeseen or changed site conditions, to adjust the project design if necessary, and so forth.
  - External stakeholders to solicit input and feedback as necessary.
  - Finance Department to discuss and confirm original project funding as well as funding for change orders on an ongoing basis.
  - All interested parties to resolve any changes in scope, cost and schedule.
- *Communicate* in writing with
  - Finance to transmit cash flow projections and provide any other financial information and required data as needed.
  - The Executive Leader to transmit documentation required to seek approval from Approving Authorities for expenditures such as project authorizations.

**Products:** The following is a list of written documents, processes, data, events, and/or other benefits that will be produced during this step:

- Contract(s) with professional services firm(s), as required, and contract amendments if scope changes.
- Contract with the construction contractor and contract amendments, as required.
- QC Plan.
- Memo that documents the changes made during construction, including agreements reached on how any cost increases would be funded as well as the financial impacts that funding change may have on other projects in the ACP.
- Daily field log.
- Minutes from Job and Operations meetings.
- Monthly project status reports.
- Change orders on construction contract.
- Safety and Security Plan.
- Monthly cash flow projections.
- Document control procedures.
- Facility commissioning schedule.
- Designer evaluation.
- Documented guarantee and warranty information.
- Training and O&M manuals for the owner that will operate the facility.
- A completed facility that meets scope, cost and schedule constraints.
- A completed facility that meets the owner's expectations and the agency's goals and objectives.

**Result:** The following is the result an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended step outlined above:

1. A satisfied owner, pleased with the facility constructed and delivered within scope, cost and schedule constraints and that meets the agency's goals and objectives.

#### **Step 4: Project Closeout and Evaluation**

**Goal:** The goal of Step 4 is to quickly and effectively close out a project and evaluate the performance of the staff and departments involved in the planning, design and/or construction of a project/facility.

**Actions:** The following is a list of actions, activities or tasks that should be completed during this step:

- **Construction Closeout:** Conduct preliminary inspection of completed project/facility for construction closeout. See page C-15 of Appendix C for a Massport's Construction Closeout Checklist and page C-16 for Massport's Construction Closeout Flowchart.
- **Punch List:** Prepare the punch list of outstanding items to be completed.
- **Substantial Completion:** Recognize substantial completion as defined by the agency.
- **Certificate of Occupancy:** Obtain the certificate of occupancy for the facility from the appropriate External Stakeholder, if applicable, and transmit to the facility user/owner.
- **As-Built Drawings/Record Drawings:** Receive as-built drawings for the facility from the contractor and transmit to the consultant for preparation of record drawings.
- **O&M Manuals:** Receive training and O&M manuals for the facility from the contractor and provide to the facility user/owner.
- **Guarantees and Warranties:** Receive guarantees and warranties for the facility from the contractor and provide to the facility user/owner.
- **Contractor Access:** Retrieve from the contractor any facility access permits granted by the agency during construction.



- **Final Clean Up and Inspection:** Conduct final clean up then conduct final inspection of project site.
- **Certificate of Final Inspection:** Issue certificate of final inspection, release and acceptance to the contractor.
- **Final Payment:** Pay the contractor's final payment requisition.
- **Grant Closeout:** Prepare and submit grant closeout paperwork to the appropriate External Stakeholder, if necessary.
- **Financial Closeout:** Identify outstanding encumbrances and confirm final balance, liquidate encumbrances, determine actual annual operating costs, book assets and expenses, and complete hard close-out. Ensure all facility costs that can be capitalized are properly coded to the asset so that they can be properly reflected in the financial statements and recovered through airline rates and charges. This will complete retirement of the asset for the purpose of collecting rates and charges.
- **Ribbon Cutting:** Conduct ribbon cutting ceremony, if desired.
- **Contractor Evaluation:** Evaluate the contractor for the construction of the project. See pages D-12 to D-14 of Appendix D for a sample contractor evaluation form.
- **Owner Evaluation:** Request evaluation and solicit feedback from the owner on the Lead Technical Department's performance in delivering the project/facility. See page D-15 of Appendix D for a sample evaluation form that can be used for internal feedback.
- **Partner Evaluation:** Request evaluation and solicit feedback from the Partners on the Lead Technical Department's performance in delivering the project/facility. See page D-15 of Appendix D for a sample internal project evaluation form.

**When:** Project closeout and evaluation should occur within the first 6 to 8 months of the facility commencing operation.

**Leader:** Lead Technical Department (See Step 3 of the Development phase for a description of a Lead Technical Department.)

**Partner:** CMT

**Methods:** The following is a list of techniques that should be used to communicate and collaborate with Partners during this step:

- *Collaborate* in meetings and/or via collaboration technology with
  - Contractor to monitor progress on the punch list until it is completed.
  - Design consultant to monitor project closeout documentation until it is completed.
  - Owner to discuss closeout process and monitor progress until it is completed.
  - Owner to assist with transition into operation, to ensure that all features are performing as designed, and to ensure that commissioning was satisfactorily completed.
  - Finance to ensure that all assets of the facility are properly coded to retire the asset and add it to the rates and charges asset base.
  - O&M Department to ensure that all assets of the facility are properly coded for future expenditure tracking.
  - O&M Department and External Stakeholders using the facility (e.g., the airlines) to solicit feedback on facility operation.
  - CMT to discuss results of evaluations conducted and summarize lessons learned and best practices (see Chapter 6).
- *Communicate* in writing with
  - Finance to transmit appropriate paperwork to retire the asset and include the facility in rates and charges.
  - The professional design services firm to produce record drawings for the facility once the project is constructed.



- The owner to transmit the record drawings for the facility provided by the design firm.
- The owner to transmit guarantee and warranty information as well as Training and O&M manuals that the owner will use to operate the facility in the next step.
- The owner and Partners to solicit input and feedback on the performance of the Lead Technical Department in delivering the project/facility via an evaluation form.
- The Executive Leader and O&M Department to schedule and conduct a ribbon cutting ceremony.

**Products:** The following is a list of documents, manuals, and other written material that will be produced during this step (see Appendix C for Model Documents and Appendix D for Sample Forms):

- Punch List.
- Project closeout documents.
- Certificate of Occupancy.
- As-Built Drawings from the contractor.
- Record drawings for the facility.
- Training and O&M manuals.
- Guarantee and warranty data and information.
- Grant closeout paperwork.
- Contractor evaluation.
- Owner evaluation.
- Partner evaluation.
- Monthly project status reports.

**Results:** The following are the results an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended step outlined above:

1. A satisfied contractor, professional services firm, owner and facility user.
2. Leadership Team and CMT satisfied with the final product and the successful collaboration among all participants during implementation of the project.

## **Step 5: Operation**

**Goal:** The goal of Step 5 is for the owner to successfully operate a facility using the features and elements included in the design (Step 2 of this phase) and constructed (Step 3 of this phase) into the facility, consistent with the criteria provided during the project definition step (Step 1 of this phase) for the benefit of the agency consistent with the agency's mission and goals.

**Actions:** The following is a list of actions, activities or tasks that should be completed during this step:

- **Operation:** Operate the facility in accordance with the O&M manuals provided by the contractor. Modify size and complexity of internal organization to ensure that performance of new facility can be maintained according to design.
- **Operating Contracts:** Procure and secure contracts for the day-to-day services required to operate and maintain the facility, if not provided by internal staff.
- **Guarantee and Warranty Issues:** Request assistance from Lead Technical Department for guarantee and warranty issues during first year of operation.
- **Preventative Maintenance:** Develop a comprehensive maintenance program. Conduct proper preventative maintenance of facility when the warranties expire.
- **Facility Management:** Implement asset management and/or facility management system to optimize preventative maintenance methods and maximize limited resources.
- **Expenditure Coding and Recovery:** Track expenditures and coordinate with Finance to ensure they are properly coded for cost recovery.

- **Operations Monitoring:** Monitor operations of the facility to identify best practices and lessons learned (see Chapter 6).

When: Operation begins after substantial completion is issued, certificate of occupancy is granted, if applicable, and the asset is retired for rates and charges purposes. The facility is operated by the appropriate O&M Department. Operation of a facility does not need to wait for the punch list in Step 4 to be complete.

Leader: Appropriate O&M Department

- **Knowledge:** The O&M Department Leader must understand the following:
  - Efficient and safe operation and maintenance of facilities and equipment.
  - Management of building equipment, systems and structures.
  - Inspection and maintenance frequency and corrective measures.
  - Operating performance standards.
  - Airfield operations.
  - Staff training needs.
  - Performance of building systems.
  - Energy consumption and conservation.
  - Facilities management staff and functions and organization.
  - Facilities planning.
  - Housekeeping requirements for large, complex facilities.
  - Proper preventative, predictive, routine, and corrective maintenance procedures.
  - Maintenance and management of materials and parts inventory.
- **Skills:** The O&M Department Leader must be skilled at the following:
  - Reading and interpreting O&M manuals.
  - Defining the scope of maintenance assignment.
  - Overseeing operations and maintenance activities.
  - Organizing a department to provide O&M functions efficiently and cost-effectively.
  - Scheduling and managing staff from multiple disciplines potentially working in the same area.
  - Preparing and overseeing operating and capital budgets.
  - Negotiating skills to contract for services.
  - Hiring qualified staff or contractors to perform work.
  - Collaborating to engage Partners.
  - Setting the example for others to follow.
  - Team building and being able to work productively with others.
- **Potential Departments:** The O&M Department Leader could be found in a department where facilities are operated or maintained. The O&M Department Leader might be in an Operations department or Maintenance department.

Partner: CMT

Methods: The following is a list of techniques that should be used to communicate and collaborate with Partners during this step:

- **Collaborate** in meetings and/or via collaboration technology with
  - Lead Technical Department to monitor and track maintenance repairs and determine when other major capital projects are needed in the future.
  - Other Technical Departments to implement, manage and maintain asset and facility management systems.
  - External Stakeholders using the facility (i.e., the airlines) to solicit feedback on facility operation and address ongoing maintenance needs.
  - Finance to ensure that ongoing maintenance and improvement expenditures are being properly coded for cost recovery.

- *Communicate* in writing with Lead Technical Department with
  - A memo when assistance with maintenance repairs or when other major capital projects are needed.

## CHAPTER 5 SUMMARY

The following topics were covered in this chapter:

- Capital financial planning;
- Scoping projects, and developing cost estimates and schedules for projects;
- Prioritizing projects;
- Trade-off analysis;
- Project execution;
- Project risk assessments;
- Change management;
- Project closeout;
- Project evaluation; and
- Collaborating and communicating with your Leader and Partners.

**Products:** The following is a list of written documents, processes, data, events, and/or other benefits that will be produced during this step:

- A fully functional facility being operated by the owner in accordance with manuals provided by the contractor.

**Results:** The following are the results an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended step outlined above:

1. A satisfied owner that is pleased with the facility as it operates.
2. A satisfied facility user.
3. Increased confidence of Stakeholders and funding entities.

## Additional Resources

- Airport Consultants Council/Federal Aviation Administration Best Practices Update Task Force, *Improving the Quality of Airport Projects: ACC/FAA Best Practices*, Airport Consultant Council (ACC)/Federal Aviation Administration (FAA) (2008) 20 pp.
- Gordon, Christopher M., "Choosing Appropriate Construction Contracting Method." *Journal of Construction Engineering*, Vol. 120, No. 1 (March 1994) pp. 196–210.
- Nichol, Cindy, *ACRP Synthesis 1: Innovative Finance and Alternative Sources of Revenue for Airports*, Transportation Research Board of the National Academies, Washington, D.C. (2007) 51 pp.
- Touran, Ali et al., *ACRP Report 21: A Guidebook for Selecting Airport Capital Project Delivery Methods*, Transportation Research Board of the National Academies, Washington, D.C. (2009) 101 pp.
- US Government Accountability Office, *GAO Cost Estimating and Assessment Guide*. US Government Accountability Office (March 2009).
- Reed Construction Data, RSMeans Cost Books for Detailed Cost Estimation <http://rsmeans.reedconstruction.com>
- Airport Consultants Council, *Airport Owners Guide to Project Delivery Systems*, Prepared by The Joint Committee of ACI-NA, ACC & AGC (October, 2006).

# Checks and Balances: Oversight

## CHAPTER 6 AT-A-GLANCE

*This chapter includes*

- Establishing a management culture of transparency and accountability;
- Monitoring goals, process and people;
- Implementing productive evaluation strategies;
- Meeting regularly to report on progress;
- Motivating staff to succeed; and
- Recognizing performance and innovation.

The final component of the CACP process is **Checks and Balances**. The purpose of the Checks and Balances component is to formalize a process for Oversight, thereby establishing a culture of transparency and accountability and institutionalizing collaboration within the Agency. Oversight is the responsibility of the Executive Leader, the Leadership Team and the CMT so that focus is retained at all levels through

- Maintaining continued involvement.
- Establishing regular review and improving processes.
- Keeping informed of targets, progress and achievements
- Documenting and communicating success in performance metrics, delivery of services and performance of staff in delivering results.

The principles of flexibility, accountability, collaboration and transparency are tested and realized during oversight. Diligent performance review of the organization, people, processes, projects, and collaboration is critically important in the oversight process. Monitoring and evaluation are predicated on the availability of meaningful and reliable data. Performance metrics are both qualitative and quantitative. The quality of metrics and the ability to report on results will be a function of the reliability and dependability of the data for the performance metrics created. Evidence of successful oversight is an organization that is innovative.

It is important to remain flexible in developing and evaluating performance metrics. Metrics are not static: they are dynamic and should change as the organization evolves.

## Major Elements in Oversight

Oversight has four major elements, which are by definition **interactive and dynamic**. To be successful, oversight needs to operate in a collaborative environment that reaches consensus around key milestones, deliverables and results. The four elements are:

1. Establishment of an approach for **performance management** to support monitoring the process and the performance of people, products and projects.
2. Continual **evaluation** of the process and performance in a collaborative environment where participants share information and explore new and alternative ways to accommodate change or improve performance.
3. Dedication to a regular **meeting and reporting** structure to maximize results as well as to communicate progress to all stakeholders, thereby increasing confidence and engagement in the process.

4. Commitment to rewarding success as often as is needed to retain the confidence and participation of key players and to continue to provide sufficient **motivation** to sustain, improve and institute a successful CACP process.

One critical aspect of oversight is the role that Leadership plays in setting the example and creating a culture that

- Manages expectations of performance.
- Fosters a positive environment to share information.
- Develops new ideas and processes to innovate and improve performance.
- Rewards success and collaboration.

Recognizing and managing shortfalls or failure to reach targets and goals in a **positive environment** is as important as recognizing and celebrating successful completion of goals, targets and results. Approving Authorities need to be confident that the information provided is real and viable. The organization needs to be empowered to participate openly and honestly in reporting results, and to work cooperatively and collaboratively to reach consensus throughout the CACP process.

Fundamental to the effective oversight of the CACP process is the ability to **establish successful collaboration**. Collaboration by definition involves the active engagement of a select group of people (Executive Leaders, Leadership Team, CMT and managers from key departments) to

- Develop and evolve the process.
- Exchange ideas on solutions to problems and challenges.
- Identify new opportunities to improve and/or optimize the process.
- Maximize opportunities to deliver quality projects on time and within budget.
- Foster innovation and change.
- Empower staff and enhance staff performance.

A few techniques that can be used to institutionalize and sustain collaboration in an ACP process and improve accountability and transparency include

- Formal agreements and partnerships that document expectations, roles and responsibilities to achieve agreed-upon goals, targets and results to all parties involved. These agreements need to codify a commitment to a process that engages people to meet regularly to review progress and resolve problems or conflicts. (See Case Study 2 on Institutionalizing Collaboration.)
- A written document or manual that identifies key players and describes the roles and responsibilities of each and the process by which consensus can be reached to develop the ACP policy, procedures, and guidelines. This should be included as part of the ACP for stakeholders to clearly understand the expectations and identify responsible parties. (See Figures 3 and 4.)
- Annual reviews of staff performance that document staff roles in the process. Reviews provide both a written process that actively engages key players in a dialogue of what worked well, what needs improvement, new ideas to enhance the process and performance, and opportunities for change and innovation. Reviews also offer a critical perspective by those involved and a feedback loop to effect better management of the process.

Successful collaboration is realized when

- Staff is highly motivated and actively engaged in regular meetings and in public forums.
- The ACP delivers a dependable and reliable scope, cost and schedule estimates for all projects.
- The ACP process yields innovative solutions in a fiscally constrained environment.
- The airport delivers high quality and dependable projects, operations and services.
- Customers are satisfied and there is increased demand to use the airport.

## Performance Management

Goals: The goals of the first element of Oversight are to

1. Establish a set of qualitative and quantitative performance metrics for monitoring the CACP process.
2. Integrate metrics into the organization's review and evaluation processes.
3. Establish target levels of performance for each metric.
4. Deliver a CACP process on time with realistic targets and financial projections.

Actions: The following is a list of actions, activities or tasks that should be completed as part of this effort:

- Establish performance metrics to use for monitoring the CACP process. These should include measures of staff performance, as well as measures of the overall process.
- Define protocols for measuring performance, including approaches for collecting data and calculating metrics.
- Define performance metric and calculation procedures in writing.
- Relate metrics to the organization's goals and targets.
- Determine appropriate targets for each identified metric.
- Measure performance.
- Communicate performance results in a collaborative environment.
- Refine and revise performance metrics and targets.

When: Performance should be actively managed and tracked on a monthly basis during regularly scheduled meetings to review the progress of the CACP process. Performance metrics should be revisited, refined and revised as is necessary with lessons learned and new data on an annual basis.

Leader: CMT (See Step 2 of the Development phase for a description of a Finance Department, Step 3 of the Development phase for a description of a Lead Technical Department and Step 5 of the Implementation phase for a description of O&M Department.)

Partner: Lead Technical Department

Methods: The following is a list of techniques that should be used to communicate and collaborate with Partners as part of performance management:

- *Collaborate* with Technical Department at regularly scheduled meetings regarding
  - The progress of projects, process and staff performance to meet targets and objectives.
  - Performance metric results and targets achieved to be communicated through regularly scheduled meetings described below.
  - Information on staff performance to be incorporated into the organization's staff review and appraisal process.
  - Progress toward targets to be reviewed regularly in a formal setting where input on progress and actions to address changes can be made.
- *Communicate* to Leadership Team at regularly scheduled meetings on
  - Results on milestones and targets achieved, changes made and anticipated results and progress toward achieving goals and results.

Sample Performance Metrics: The following is a brief list of types of performance metrics that may be established for monitoring the CACP process, depending on resources and availability of data:

- Schedule adherence.
- Budget adherence.



- Extent of work accomplishments.
- Degree to which ACP complies with program constraints.
- Quality, efficiency and responsiveness of staff work.

The following approaches may be used to measure performance of the CACP process:

- Financial analysis of the ACP.
- Queries from supporting databases and tools (see Chapter 7).
- Monthly reports.
- Performance appraisals of staff.

An example of good performance measures was provided by BCAD. See page C-18 in Appendix C.

**Products:** The following is a list of written documents, processes, data, events, and/or other benefits that will be produced as part of this effort:

- Identification of performance metrics and targets for use in monitoring CACP process staff and process performance.
- Measurement of performance on an ongoing basis.
- Monthly performance reviews.
- Periodic reviews of metrics and targets.

**Results:** The following are the results an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended effort outlined above:

1. Quantified results of staff and process performance in developing the ACP.
2. A transparent process that documents and celebrates success, and makes adjustments to improve the process and performance.
3. Accountable managers and increased motivation by staff to participate in process.



#### Case Study 4: Implementing Performance Management

The City of Columbus developed the Columbus\*Stat program to formalize a collaborative performance measurement for accountable and transparent budgeting in multiple departments. Performance management was viewed as a critical process to guide investment decisions and improve accountability in performance.

The focus of the program is to

- Carefully define and refine measures.
- Gather appropriate and relevant data.
- Report on data according to a set schedule.
- Train staff to manage the process.
- Address any change efficiently within the review processes.

The main concern is to track the **right** measures, as data overload is always a risk. Therefore, analysts stay focused on working with each department to examine the measures and identify new measures based on operational and strategic initiatives. The process is **fluid** and measures are refined, added and deleted largely based on the collaboration with the departments to achieve the Covenant goals.

Through this iterative process with formal reporting and monitoring in place, the Columbus\*Stat Panel is able to receive data on conditions and performance, reshape programs, priorities and resource allocations among projects, and improve accountability and service delivery to consumers.

#### **Critical Success Factors:**

- Develop relevant measures that are tied to mission, goals and objectives so as not to waste time and money collecting unnecessary data.
- Set reasonable performance targets in advance to motivate departments to deliver service improvements.
- Report accurate and timely data and regularly provide useful information for managers.
- Train managers to understand how to learn new ways to use data, measures, communicate and report so that performance data will be used to inform decisions.

## **Evaluation**

**Goals:** The goals of the second element of Oversight are to

1. Create a collaborative platform and schedule to improve the process, projects and performance of the CACP process.
2. Identify alternative strategies (metrics, funding or staffing) necessary to achieve results.
3. Develop a set of performance evaluations for both managers and leaders involved in the process.
4. Manage change in scope, schedule and budget through a collaborative and scheduled review and reporting process.
5. Identify and sustain best practices.

**Actions:** The following is a list of actions, activities or tasks that should be completed as part of this effort:

- Review goals against targeted performance metrics and make necessary adjustments to process as necessary.
- Refine actions, targets and schedules based on performance metrics.
- Report on progress according to established schedules.
- Review lessons learned and replicate best practices.
- Secure additional resources if necessary.
- Utilize feedback from performance evaluations to make necessary adjustments in staffing, definition of roles and responsibilities and the process as necessary.

**When:** Review of projects' scope, cost and schedule, evaluation of targets against goals, and adjustments due to changes should take place during monthly meetings. The performance of the ACP process, people and projects should be evaluated annually incorporating lessons learned and duplicating best practices.

### **Compelling Practice #12 Managing Schedule**

PANYNJ has found that tracking project schedules and completions closely has been effective in implementing the ACP. The more projects that can be completed and the assets subsequently retired, the more assets for which rates and charges can be collected, and the more revenue that can be generated.

### **Compelling Practice #13 ACP Process Evaluation**

San Francisco International Airport (SFO) has working groups that conduct a mid-year review of the ACP to identify issues early. It allows SFO to consider and evaluate new project requests during the fiscal year. This also enables SFO to reallocate funds from any project that cannot be, or is not being, implemented for another project that may need the funding or to fund a new project that was not anticipated.

**Leader:** Executive Leader (See Agency Policy in Chapter 4 for description of Executive Leader.)

**Partners:**

- CMT and Leadership Team for review and refinement.
- Approving Authorities and Stakeholders for status reports and updates if necessary.

**Methods:** The following is a list of techniques that should be used to communicate and collaborate with Partners as part of this effort:

- *Collaborate* with CMT in monthly meetings and using written reports on
  - Evaluations of progress, changes and alternatives.
  - Actions to be taken to correct for any changes or missed targets.
- *Communicate* with Leadership Team in monthly reports on
  - Any changes that require new directions, additional resources or adjustments to results.
- *Communicate* to Approving Authorities and stakeholders at quarterly meetings and in monthly reports on
  - Results and actions taken to correct for targets missed.

**Products:** The following is a list of written documents, processes, data, events, and/or other benefits that will be produced as part of this effort (see Appendix C for Model Documents and Appendix D for Sample Forms):

- Monthly progress and status reports.
- Status report on projects and programs.
- Schedule and cost updates.
- Performance evaluations of staff and the ACP process.

**Results:** The following are the results an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended effort outlined above:

1. Leadership Team and CMT are committed to being flexible and are working collaboratively to deliver an accountable and transparent process.
2. Achievable targets documented, benefits realized and value added quantified.
3. Satisfied, motivated staff dedicated to executing the CACP process.

## Meeting and Reporting

**Goal:** The goals of the third element of Oversight are to

1. Create transparency and accountability around the process, projects and performance of the CACP process by establishing regular reporting requirements.
2. Create a safe environment where staff can collaborate on the process, changes and innovations.

**Actions:** The following is a list of actions, activities or tasks that should be completed as part of this effort:

- Establish a set meeting schedule at the beginning of the ACP cycle.
- Develop standard operating procedures for managing and reporting on projects and progress.
- Develop monthly progress reports.
- Assess the financial status of projects and key programs in the ACP.
- Identify obstacles to meeting goals and solutions.
- Review projects and program performance.
- Develop annual reports to External Stakeholders and funding entities.

## Compelling Practice #14

### Progress Reports

PANYNJ has two comprehensive reporting mechanisms that aid them in monitoring and tracking the ACP. In support of managing design projects for the Aviation Department, the Engineering Department uses Open Text Corporation's LiveLink to generate the quarterly "Present and Planned Workload" report that breaks down the work underway by discipline so that it can be aggregated by project to assess whether projects are meeting their scheduled completion dates and whether scheduled construction awards are on track.

To assess overall spending against total project costs, Project Managers use InCaps, which downloads actual cost data from SAP software into project cost categories so that spending in the current year and overall project spending can be tracked readily and as often as needed.

**When:** Meetings should take place and reports disseminated on a regular monthly schedule published in an ACP calendar.

**Leader:** Executive Leader (See Agency Policy in Chapter 4 for a description of Executive Leader.)

**Partners:** Leadership Team, CMT and the Technical Department

**Methods:** The following is a list of techniques that should be used to communicate and collaborate with Partners as part of this effort:

- *Collaborate* with the Partners using detailed reports at regularly scheduled meetings on
  - The performance of projects, metrics, operations and deliverables.
  - Targets and alternative strategies to achieve results if necessary.
  - Identify new mechanism to achieve results, improve performance or to modify targets if necessary.
- *Communicate* with the Partners and Approving Authorities in meetings using documented reports on
  - Status of the changes.
- *Communicate* with Approving Authorities and stakeholders in person as needed on
  - Successes achieved, lessons learned and adjustments made to the process to realize results and validate investments.

**Products:** The following is a list of written documents, processes, data, events, and/or other benefits that will be produced as part of this effort (see Appendix C for Model Documents and Appendix D for Sample Forms):

- Monthly Progress and Status Reports on scope, cost and schedule.
- Annual Report to Approving Authorities and Stakeholders.
- Reports to Stakeholders in the form of a Report Card.

**Results:** The following are the results an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended effort outlined above:

1. Increased organizational buy-in and participation from staff and stakeholders.
2. Documented best practices and lessons learned from the CACP process.

## Motivation

Goals: The goals of the fourth element of Oversight are

1. Recognize and reward success through public recognition, promotions, and so forth.
2. Promote and communicate best practices to stakeholders and at industry forums.
3. Optimize staff performance to improve and innovate on delivery of the CACP process.
4. Encourage quality performance, collaborative meetings, consensus on solutions and changes, and honest reporting.
5. Foster innovation.

Actions: The following is a list of actions, activities or tasks that should be completed as part of this effort:

- Document goals realized and targets reached.
- Celebrate success with staff and stakeholders. Do not punish “honest” failures, but utilize those lessons and make necessary changes.
- Recognize small and big innovations along with successes.
- Develop solutions to manage short falls.
- Secure support and resources to deliver on goals.
- Demonstrate results/motivation of staff and stakeholders.
- Seek external awards for innovation.

When: Performance should be recognized and rewarded annually and as the opportunity merits.

Leader: Executive Leader (See Agency Policy in Chapter 4 for a description of Executive Leader.)

Partners: Leadership Team, CMT and the Technical Department

Methods: The following is a list of techniques that should be used to communicate and collaborate with Partners as part of this effort:

- *Collaborate* with the Partners annually on
  - Team member performance as acknowledged by the Leadership Team, the CMT and the Technical Department for successes, progress made in achieving targets and performance metrics that meet expectations in formal settings within the organization.
  - Nominations of staff by Leadership Team and/or CMT for recognition awards in the agency or the industry.
- *Communicate* in formal presentations with the Partners
  - To Executive Leader and Approving Authorities on targets achieved, benefits realized and value added at board, commission or public meetings
  - At industry conferences on best practices and lessons learned from the CACP process.
  - For support of submission of articles and white papers by staff on the CACP process to industry forums.
- *Celebrate* success and reward performance by
  - Utilizing social media to promote innovation and successes.
  - Profile high performers and CACP process milestones and successes at staff meetings and at boards.
  - Recognizing achievements of staff with lunch with the Executive Leader or compensation such as technical conference attendance or a day off.
  - Promoting risk takers.
  - Providing opportunity for successful managers to have access to board or CEO.

**Products:** The following is a list of written documents, processes, data, events, and/or other benefits that will be produced as part of this effort (see Appendix C for Model Documents and Appendix D for Sample Forms):

- Presentations by staff at Board or Commission meetings, conferences or at industry events.
- Internal and external articles published on best practices and innovative projects.
- Awards/acknowledgement of performance resulting in delivering on budget and schedule to achieve targets and realize value.
- Benefits to staff for performance (time, bonuses, acknowledgement).

**Results:** The following are the results an agency can expect in terms of targets achieved, benefits realized and value added when an agency follows the recommended effort outlined above:

1. A sustainable, transparent and accountable process with motivated staff to achieve high levels of performance.
2. Buy-in from Approving Authorities and staff.
3. An institutionalized, sustainable and collaborative ACP process.

Each year an ACP will encounter new challenges and opportunities that need to be addressed and documented throughout the ACP cycle.

## CHAPTER 6 SUMMARY

The following topics were covered in this chapter:

- Performance Management,
- Culture of Collaboration,
- Evaluation of process and staff,
- Meeting and reporting, and
- Motivating staff.

## Additional Resources

- Artley, W. and S. Stroh, *The Performance-Based Management Handbook, Volume Two: Establishing an Integrated Performance Measurement System*, Training Resources and Data Exchange Performance-Based Management Special Interest Group (September, 2001) 100 pp.
- Denton, D. Keith, "Developing a Performance Measurement System for Effective Teamwork." *International Journal of Quality and Productivity Management*, Vol. 7, No. 1 (December 15, 2007) pp. 28–38.
- Ittner, C. D. and D. F. Larcker, "Coming Up Short on Nonfinancial Performance Measurement." *Harvard Business Review* (November, 2003) pp. 88–95.
- Kirby, Julia, "Toward a Theory of High Performance." *Harvard Business Review*, Vol. 83 No. 7/8 (July 01, 2005) pp. 30–39.



## CHAPTER 7

# Tools and Technology

### CHAPTER 7 AT-A-GLANCE

*This chapter includes*

- Spectrum of technology available for capital program management,
- Guidance and best practices for capital planning technology, and
- Essential components to implement of new CACP technology.

### Research Findings

Technology research conducted for the development of this Handbook included a general review of literature pertaining to technology used for capital planning and collaboration at airports and in other industries. The literature review included evaluation of software packages used for capital planning at various institutions, such as capital program management systems (CPMS), project management software, document control programs and web-based teaming sites.

A brief preliminary survey was sent to a wide range of airports of various sizes and governing structures across all FAA regions. The preliminary survey results regarding information technology showed that

- The majority of airports surveyed did not utilize sophisticated capital planning technology, but, in recent years, several have implemented formal software systems for the development and management of capital plans.
- Less than 30% of preliminary survey respondents stated that they used software for creating and managing the ACP collaboratively, but there was an increasing trend toward implementing web-based technology and enterprise content management systems.
- Only one-third of respondents stated that their software systems were integrated, but many more expected to have their systems integrated in the future.

The preliminary survey was followed by a more in-depth and detailed survey of nine airport agencies and four nonairport agencies. The detailed survey results showed a strong desire among many airports for implementation of better technological tools to facilitate communication and collaboration in the capital planning process. Some challenges mentioned by survey participants as standing in the way of implementing new technology included financial constraints, resistance to change, chaotic workflow and lack of leadership.

The majority of agencies that participated in the detailed survey had recently implemented, or were in the process of researching, technology solutions to assist in the development and management of their capital plans.

### Technology

Technology is a valuable tool in the development, implementation and oversight of an ACP. Technology can be as simple as a spreadsheet shared on a network server or as sophisticated as a CPMS integrated with an enterprise resource planning system, depending on the needs and

TYPICAL AIRPORT SIZE	\$	\$\$	\$\$\$	\$\$\$\$	\$\$\$\$\$
GA Non-hub	MS Word MS Excel MS Access				
Non-hub Medium-hub Small-hub		MS Project Primavera			
Small-hub Medium-hub			CapitalVision CipPlanner SaaS Skire RapidStart		
Medium-hub Large-hub				CipPlanner CipAce ebuilder Skire Unifier	
Large-hub					Oracle SAP
FUNCTIONALITY	Simple Productivity Software (spreadsheet, word processing, database )	Project Management (more sophisticated scope, budget and schedule management)	Construction Management, Facilities Management, Capital Program Management (project management, operations management, asset management)	Capital Program Management System (sophisticated project and program management)	Enterprise Resource Planning (can integrate finance, HR, etc. with capital program management systems)

**Figure 8. Spectrum of capital planning technology.**

complexity of the organization (see Figure 8). The CPMS vendors listed in Figure 8 are not the only options available. However, these were the systems most frequently cited by survey respondents.

Using the appropriate technology for an agency will provide easier, faster, more flexible and efficient access to data and information, and can facilitate the process of communication and collaboration throughout the life of an ACP.

For all agencies, regardless of size, the most optimal use of technology includes electronic storage of data for easy retrieval and sharing of information, and elimination of redundant data entry by multiple parties keyed into numerous systems.

Larger organizations may find that the most efficient use of their resources can be realized by implementing enterprise systems that can integrate multiple functions. On the other hand, some airports may continue to utilize a smaller-scale approach while working toward reducing duplication of data by clearly defining data management roles and responsibilities. Even an organization that does not have the financial or human resources to implement a large-scale enterprise system can achieve a good return on investment by performing a detailed review of workflow processes with an eye toward streamlining data flow.

Detailed review, refinement and streamlining of processes is the most important step before implementing any information technology solution and can benefit any agency whether or not new technology is acquired. It is essential to examine workflows and establish standardized business practices to reduce duplication of effort and integrate information for maximum efficiency.

Decision makers require reliable information to make the best-informed choices. They can be well guided by reviewing appropriate metrics, measures and results collected throughout the

ACP process. The computing industry has a long-held maxim that “garbage in equals garbage out.” In other words, focus metrics and data collection on the agency’s specific needs and do not waste time and resources compiling unused and unnecessary data. Collect only what is needed to document results.

It is also important to share the right data with the right people. Designate specific staff roles and responsibilities regarding input and output of ACP data to ensure that the correct information is collected and that appropriate stakeholders receive accurate reports to aid in accountability.

Ideally, each agency’s technology solution will include tools that allow users to easily create, track and report each step of the ACP without redundant effort. Systems used in the ACP process may include those for managing assets, projects, schedules, budgets/costs, a capital program, resources, document control/content management, finance, planning, portfolio, as well as collaboration tools for conferencing via video, phone and internet.

Staff must provide leadership with continuous feedback on performance and progress in order to promote flexibility and accountability. Lower cost options to accomplish this goal include email, bulletin boards, blogs and internal websites. More expensive technology such as CPMs offer more sophisticated ad hoc reports, dashboards, scorecards, instant alerts, and shared document functions.



#### **Case Study 5: Affordable Technology**

Columbus\*Stat is not a software program. It is a business approach focused on transforming government practices to promote accountability and to develop performance measurement systems for managing results. One important advantage that Columbus\*Stat offers is the simplicity in its software and technology requirements.

The City of Columbus used existing data from its 311 system (a constituent service database that tracks citizen service requests concerning potholes, streetlights, rodents, trash collection, etc.) as well as other data sources for reporting on performance metrics to Internal Stakeholders. Benchmarking was used based on best practices. In 2008, performance dashboards were created using Microsoft Excel workbooks for each program, which allowed for regular tracking and analysis of the performance data. These workbooks were presented to staff through a web-based interface.

The Columbus Covenant identifies peak performance as one of its seven goals. Employees participate in a “Performance Excellence Program” that uses a secure, internal web portal to set their performance goals and review competencies.

#### **Critical Success Factors:**

- Uses existing basic productivity software—low cost, easy to implement and manage.
- Encourages collaboration by providing a forum for regular review, monitoring and reporting on progress.
- Requires strong leadership, designation of key departments with clear roles and responsibilities, established targets and continuous monitoring of results.

Agencies should attempt to integrate data from disparate sources in order to facilitate accurate forecasting, allow for more extensive analysis, and provide real-time reporting regarding the capital planning process. For example, in the course of any capital project, related data may be captured by multiple staff throughout various departments who are processing the information for different reasons (scheduling, budgeting, finance, payroll). Good integration of data will reduce time-consuming, redundant data entry and will facilitate communication.

Legacy systems, closed architecture and outdated infrastructure will make total integration impractical for some airports, but even those agencies should strive to achieve the highest level possible of integration between data sets and among various systems. Use of standard, flexible data formats such as XML (extensible markup language) can greatly improve the ability to integrate data without making a capital investment.

Sophisticated, integrated capital management systems allow multiple users to simultaneously log into a consolidated data repository to enter, track and monitor all phases of each project in the capital program in real-time.

Integrated systems allow airport executives to use dashboards and scorecards to measure progress and performance. Dashboards monitor up-to-the-minute performance data; many CPMs can be programmed to send automatic notifications to leadership whenever metrics deviate from predetermined standards. Dashboards can usually be customized depending on the user's role, so that administrators can quickly view in a user-friendly graphical format the metrics and key performance indicators that they find most important, such as financial summaries and project completion statistics. Selected indicators should be specific, measurable, accurate, relevant and timely. Typically dashboards provide hyperlinks to "drill down" to more detailed data. Scorecards show periodic snapshots of progress toward objectives and display a comparison of measures over time.

Leadership must remember to include IT projects in the capital and operating budgets, including all relevant resources and training, and should include IT staff in planning sessions regarding any new technology purchase. Utilizing the expertise and experience of those with functional knowledge of technology administration and implementation will reduce overall labor and capital expenditures in the long run, avoid confusion, save time, ensure a more effective system, and better manage needed information.

## Collaboration Technology

Collaboration technology can facilitate communication and collaboration across departments and locations, allowing for more dynamic exchange of ideas and information. For the purposes of this Handbook, collaboration technology is defined as "tools that create a shared virtual workspace and enable real-time collaboration." These tools include teleconferencing, video conferencing, and web-sharing applications such as GoToMeeting, WebEx, Bridgit and AdobeConnect.

Software commonly referred to as "collaborative" includes team websites, document control software and content management programs; such tools allow users to create and share documents, manage versions, design workflow and communicate. These are valuable tools for facilitating accountability, transparency and flexibility, but they do not meet this Handbook's definition of true collaboration as they merely provide a forum for communicating information data back and forth. *Collaboration requires dynamic and synchronous interaction between humans to create ideas, not just share information.*

## Shared Documentation

Electronic tools for shared document creation and content management include Documentum eRoom, Open Text Corporation's LiveLink, Hyland Software OnBase and Microsoft SharePoint.

Many of these are web-based systems and usually contain methods to control document check-out and track version history. Content management systems allow multiple users to create and modify shared documents. Teaming websites, shared document systems and content management programs can improve communication between users and facilitate transparency in the ACP process.

### Capital Program Management Systems

A number of software programs have been specifically designed to track funding sources, disbursements and expenditures for airport capital projects, including CIPPlanner CIPAce, SDG CapitalVision and Skire Unifier. Major software vendors such as Microsoft, Oracle and SAP have also developed modules within their enterprise systems for tracking capital projects. These technology solutions also contain built-in document management and electronic teaming/data exchange/data sharing functionality.

Most CPMs are scalable products that contain various modules (see Figure 9). Each airport can select a different mix of modules based on specific needs. Vendors will work with the airport to perform “discovery,” an analysis to define workflow, identify process improvements and plan system implementation. Airports are guided by the vendor in configuring the appropriate installation based on business logic and agency-specific processes.

CPMs contain features for predefined and ad hoc reporting, querying, data analysis, auditing, data tracking, performance monitoring, executive dashboards and scorecards. Many provide the

		Vendor 1	Vendor 2	Vendor 3	Vendor 4
INSTALLATION	Web-based	x	x	x	x
	Internally Hosted	x	x	x	
	Externally Hosted	x	x	x	x
MODULES/ MAJOR FUNCTIONS	Bid/Contract/Vendor Management	x	x	x	x
	Budget/Cost Management	x	x	x	x
	Document Management	x	x	x	x
	Facilities Management			x	
	Funding/Grant Management	x	x	x	x
	Portfolio Management	x	x	x	x
	Project/Schedule Management	x	x	x	x
	Real Estate Management			x	
	Workflow / Business Process	x		x	x
FEATURES	Ad Hoc/Custom Reports	x	x	x	x
	Automated Alerts	x	x	x	x
	Configurable Dashboards	x	x	x	x
	Contact Management	x	x	x	x
	Shared Calendar	x		x	x
EASILY INTEGRATES WITH THESE EXISTING SYSTEMS	Accounting	x	x	x	x
	Asset Management	x	x	x	x
	Building Information Modeling (BIM)	x		x	x
	Document Management	x	x	x	x
	Enterprise Resource Planning (ERP)	x	x	x	x
	Finance	x	x	x	x
	Geographic Information System (GIS)	x	x	x	x
	Project Management	x	x	x	x

NOTE: In this sample analysis, actual vendor names are not used.

**Figure 9. CPMs—modules and functions.**

capability for project prioritization, multi-year capital planning, funding appropriations, and what-if scenarios. These systems generally provide a shared data repository, the ability to create online workspaces, business process automation and workflow management, and document checkout and versioning.

Common modules found in capital program management systems include accounting, analysis/modeling/scenario, asset management, bid management for tracking the acquisition of goods and services, capital planning, cash flow/earned value management, contract management (bids, vendors, invoices, contracts, purchase orders), cost/budget management, decision making, project ranking, document management for centralized, electronic document creation and storage, financial management, funding and grant management, performance measurement, portfolio management, proposal management, real estate management, resource management and project schedule management.

### Best Practices for Using Technology in the CACP Process

The following is a summary of the best practices that should be used when selecting and/or deploying technology related to management of the CACP process.

- Scrutinize the quality and reliability of the data collected. Clearly focus on the information that is collected on the agency's needs. Do not waste time or resources collecting unused and unnecessary data.
- Ensure that the appropriate data is shared with the appropriate staff.
- Examine workflows and establish standardized business practices.
- Assign IT staff to the CMT and formally engage information technology staff in planning decisions.
- Remember to include IT projects in the capital and operating budgets.
- Normalize data (organize and reconcile information to minimize redundancy, errors and inconsistencies.) Eliminate duplicate sources of data entry and connect separate streams of data.
- Integrate systems wherever possible. Use flexible data formats to allow data exchange between disconnected systems.
- Try to standardize use of the same technology across the agency so that data collected from various departments can be blended.
- Provide electronic tools for off-site synchronous collaboration and for shared document management.



#### Case Study 6: Using Capital Program Management Software

PHX selected and implemented a new CPMS in 2009. The new system provided the ability to share data in real time, retrieve information from anywhere, move money across the capital plan, reestablish priorities and perform audits. Team members can now design projects together by each opening the same drawing,

viewing a communication log, and deciding on a solution immediately. The Capital Budget and Finance departments can work jointly by using the system to track each project throughout the planning, design, construction and closeout phases.

An external consultant serves as Program Manager to operate the CPMS. The function of mapping procedures and planning the implementation took approximately



5 months. In the beginning, PHX received resistance from some users who wanted things to remain the way they used to be (creating documents by hand, transferring files using FTP sites.) One year later, most users reported being very satisfied with the process. By March 2010, PHX was tracking 800 projects using the CPMS. The airport was able to eliminate redundant steps from the existing routine after implementing the software.

PHX's CPMS contains built-in tools for managing funds that allow users to see funding sources and amounts budgeted/authorized/paid and lets users monitor, manage and track project changes. PHX has appointed "CIP Liaisons" within each division who use the software system to prepare project requests and coordinate development of project budget, scope and schedule. The CMD uses it to create and maintain a department-wide CIP budget management system.

PHX has found reward in the clearly defined processes, detailed workflow and objective prioritization system that all projects must go through in the new software system. Users can easily check status within workflow due to the transparency of the process. There is buy-in from Internal Stakeholders and from senior management.

**Critical Success Factors:**

- Solicited feedback from all stakeholders and used that feedback to refine the process during future implementation of new systems.
- Roles and responsibilities were clearly defined for CIP Liaisons and all others in the ACP process.

## Technology Decision Making

It is important that decision makers spend adequate time reviewing options in order to select the right solution for the agency. They should evaluate the type of technology, vendors, specific modules and implementation methods. Agencies that make major technology investments without first performing a comprehensive analysis could end up with a system that does not meet their needs. A clear understanding of the agency's goals and objectives will inform and guide technology decisions.

Far too many software applications end up as "shelf-ware." After they are purchased and the money is spent, they never achieve their stated objectives. (True, L. C. and Koenig, K. M., 2009)

In order to make a decision regarding technology, an agency should do the following:

1. Compute the total cost of ownership (TCO), taking into consideration all required hardware as well as fees for licenses, annual support, service contracts and consultants.
2. Investigate up-front costs and recurring costs.
3. Calculate the ROI to determine whether the cost and effort of implementing the new technology is worth undertaking.
4. Be sure to take into account the intangible benefits such as improved customer satisfaction and real-time access to information.
5. Compare apples to apples when reviewing various vendors and types of systems.

## Factors in Evaluating New Technology

The following are factors agencies should consider in making decisions when evaluating new technology for capital planning:

- Current availability of internal IT support versus technical support available from vendor (cost, response time, turnaround time);
- Current technology inventory versus system requirements of potential technology (hardware/software/environment/infrastructure/bandwidth);
- Commercial Off-The-Shelf (COTS)/Government Off-The-Shelf (GOTS) versus custom built;
- Installed software versus web-based/Software-as-a-Service (SaaS)/cloud hosting;
- Internal hosting versus third-party hosting;
- Complexity and types of modules needed;
- Scalability offered;
- Availability of real-time data;
- Security measures and user permissions;
- Level of data integrity;
- Database storage requirements;
- Ability to integrate with existing systems;
- Ability to import and or integrate existing data/data formats;
- Training requirements/learning curve;
- Ease, time, and cost of implementation;
- User-friendly interface;
- Remote access, external access; and
- Regulatory compliance (e.g., Sarbanes-Oxley).



### Case Study 7: Implementing Capital Program Management Technology

BCAD selected and implemented a new CPMS in 2009. The system is a web-based, hosted service. The goal was to deliver the resources that staff needed directly to their desktops.

Prior to implementation, BCAD's ACP process entailed repeated use of multiple static documents, duplicated across functional areas, with dozens of reports from various sources. The airport had several departments in charge of various functions such as airport expansion, planning and CIP, each with its own data and processes.

BCAD spent a great deal of time standardizing processes. Before implementing the new software, BCAD undertook a Six Sigma effort to improve the CIP process. In order to create order from the chaos of many separate spreadsheets, standardization was the key.

They used a phased approach for implementation, initially loading only a subset of projects into the system and training specific functional groups (Finance, Project Managers and Contract Administrators) to serve as beta testers. At the time of this ACRP research survey, the new system had been in place for one year with perhaps another 6 months before it achieved 100% functionality.

BCAD elected to integrate individual systems rather than choosing a single-provider solution (CPMS, project management, construction management software).

Data is shared internally using Microsoft SharePoint and is shared externally by means of email.

BCAD's implementation effort benefited from committed and disciplined leadership to assist in establishing new processes and to break down barriers.

BCAD found that the benefits of its new technology included

- A user-friendly platform for document creation/control and workflow management,
- A significant reduction in redundancy of data and improved data reconciliation through use of a single repository, and
- Enhanced communication among participants in the ACP process.

**Critical Success Factors:**

- Leadership was supportive of the new processes and technology.
- Comprehensive review and refinement of existing processes.
- Phased approach to implementation.

## **Key Elements to Successful Implementation of Enterprise Software**

A successful enterprise software implementation shares some of the same basic components as a successful CACP process: Leadership, Development, Implementation and Oversight, as described below:

- Obtain buy-in from the Leadership Team and Stakeholders.
- Executive Leader must commit resources and communicate their sponsorship throughout the organization.
- Define workflow and processes and clarify roles and responsibilities before executing installation. Perform in-depth process analysis/enhancement.
- Clearly define the goals, objectives and expected results that the new technology will provide. Examine hardware and infrastructure requirements (be sure to meet software vendor's recommendations regarding speed and capacity). Carefully examine existing technology to determine the most effective options for data conversion and system integration.
- Communicate those defined roles and responsibilities to appropriate departments/individuals. Designate the integration/implementation lead, system administrator, and in-house experts for each subject matter/functional area. Larger agencies may benefit from hiring external consultants with a solid history of implementing enterprise technology solutions. Those that utilize solely internal staff for executing implementation may look to their software vendor for guidance on developing an implementation plan and deployment schedule.
- Establish regular communication among all participants before/during/after implementation (expectations, progress, feedback). Facilitate collaboration between business units and within departments.
- Continuously obtain end-user feedback to refine the process.
- Implement in phases. Plan scope, cost and schedule in detail.
- Determine metrics for the technology implementation plan just as for any other project; include a regular schedule for reporting.
- Normalize data. The process of organizing data reduces redundancy/improves data integrity and optimizes search and query functions.

- Conduct system testing. This is a crucial element before the system goes “live” to prevent data loss and wasted labor.
- Perform user acceptance testing. Subject-matter experts perform user acceptance testing to ensure that the completed system will meet the agency’s business requirements. The long-term success of implementation requires that end-users buy in to the new process; while all projects face unexpected challenges, it is important to minimize the level of frustration that users experience.
- Provide training. A well-conceived and well-executed training plan will be worth the time and cost, especially if the system and/or processes being implemented are considerably different from existing ones. Users will be more productive and can use the new system more efficiently and accurately in a shorter amount of time if properly trained.

## CHAPTER 7 SUMMARY

The following topics were covered in this chapter:

- Capital planning tools,
- Capital program management software,
- Collaboration technology, and
- Tips for evaluating and implementing technology.

## Additional Resources

FIATECH Capital Program & Portfolio Management Software Vendor Directory. <http://www.fiatech.org>  
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 True, Laurence C., and Kurt M. Koenig. “Software Implementation Best Practices.” *Building Profits*, Construction Financial Management Association (July-August 2009).



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# Glossary of Terms, Abbreviations and Acronyms

## Glossary of Terms

**Accountability.** Demonstrating progress on tasks, actions and performance metrics against stated targets, goals and objectives established to fulfill the mission of the organization. Being accountable is the responsibility of each individual assigned to tasks, and requires monitoring and reporting on what has or has not been achieved and what has or has not worked.

**Agency.** Any formalized unit of government having administrative, programmatic, legal, fiduciary, and/or regulatory functions granted to it through legislation, governmental mandate, or other means and for which it receives or generates revenue.

**Agreement.** A formal document that states a shared understanding of roles and responsibilities, expectations and obligations. It can range from a written agreement among and between internal departments to an executive order signed by an elected official that requires coordination, communication and collaboration of defined parties to deliver a specific product. It can take the form of a Memorandum of Agreement signed by participating entities, or a Memorandum of Understanding that binds parties to a specified outcome, or a Charter or Covenant that defines a process and its targeted outcomes.

**Airport Capital Plan (ACP).** The document that defines the financial and programmatic expenditures for the capital programs and projects proposed to meet facility needs as well as agency mission and goals for a multi-year period. The ACP includes the scope, cost and schedule data for the programs and projects.

**Approving Authorities.** Any board, commission, or committee made up of appointed or elected officials with the legal, regulatory or fiduciary authority to approve an Airport Capital Plan, such as a Board of Directors, a County or Aeronautical Commission or a Committee. Approving Authorities can be Internal or External Stakeholders depending on the agency's organizational structure.

**Benchmarking.** The process of comparing an agency or individual's performance metrics to best practices from other industries. Dimensions typically measured are quality, time, and cost. Improvements from learning mean doing things better, faster, and cheaper.

**Capital Management Team (CMT).** A CMT is established by the Executive Leader with the Leadership Team and is composed of senior managers from those departments that are responsible and accountable to develop, implement and oversee the ACP and play a vital role in determining the outcomes of the ACP. The composition of the CMT will depend on the size, structure and complexity of the airport. For example, a CMT may include a CEO of the airport, director of aviation (or the O&M Department), and senior managers from finance, planning, engineering and information technology (see Figure 5: Sample Organization Charts in Chapter 3).



**Collaboration.** A dynamic real-time interaction between people that is iterative and evolutionary. It is a process of creation—an exchange of ideas where two or more people come to a shared understanding about a process, product or event. Collaboration is typically employed to solve problems, develop new understandings and design new outcomes. To be effective, collaboration needs to be set in a results-driven framework with targets defined and achievements noted and realized.

**Collaborative Airport Capital Planning (CACP) Process.** A framework established to develop, implement and oversee the ACP that binds Executive Leaders, the Leadership Team, the CMT and Internal Stakeholders to create a dynamic environment in which information is used to develop a shared understanding of the goals, actions, targets, performance metrics, products and results in an ACP process.

**Collaboration Technology.** The standard definition of Collaboration Software is “software that allows people to work cooperatively to achieve a common task regardless of their geographic location.” For the purposes of the CACP process, we discuss Collaboration Technology that creates a shared virtual workspace and enables realtime collaboration, such as teleconferencing, and video conferencing, and web-sharing applications such as GoToMeeting, WebEx, Bridgit and AdobeConnect. Software commonly referred to as “collaborative” such as Microsoft SharePoint, SAP xRPM, document-control software, blogs and wikis, are still valuable tools for facilitating flexibility, accountability, collaboration and transparency, but do not meet the definition of true collaboration as they merely provide a forum for communicating data back and forth.

**Communication.** An action to dispense and/or exchange information from one person to another. It can be provided in person (meetings) or by electronic or hard copy documentation (memos or reports). The process is informative and is typically one-way. There is no exchange of ideas. It is a process by which people understand each other and how information is transferred in an organization. The responsibility of communication lays directly with leaders and managers in an organization and it needs to be clear and done often.

**Consensus.** The definition of consensus is that general agreement has been reached by a group as a whole, that all ideas and opinions have been listened to and taken into account. Therefore, consensus is the successful outcome of communication, cooperation and collaboration. It is the process by which the majority of those involved agree to the strategy, process, policy, outcomes, etc. Collaboration should yield consensus and indeed it is imperative to have agreement over a strategy or process. In fact a true test of a successful collaboration is when consensus is achieved as those involved in the process have attained an understanding of what is important.

**Cooperation.** Requires a designated team with clearly defined roles, responsibilities, goals and outcomes. Critical to gaining cooperation from the team is an understanding of the goals, value and benefits of the process as well as the expectations of the teams’ performance. Inherent in cooperation is the openness to change and innovation that often can take the form of disagreement or even conflict. Creating a culture of cooperation requires as much of an openness to collaborate on different ideas as it is about achieving high performance.

**Coordination.** Begins with the assumption of differences within an organization and includes people, units in departments and divisions within an organization. In many organizations there are overlapping responsibilities, redundancy in processes and even conflicts in goals and objectives. Coordination is the process by which clarity regarding those roles, responsibilities and outcomes is defined clearly and communicated often. It involves an openness to change and more importantly to learn from those responsible for managing the process. Coordination is the responsibility of leaders to orchestrate and managers to demonstrate.

**Components of the CACP Process.** The three components of the CACP process are the Foundation, Nuts and Bolts and Checks and Balances.

- **The Foundation—Leadership:** Successful leadership and executive management are precursors to this and must include the following components that are clearly defined and communicated to managers responsible for developing, implementing, and overseeing the CACP process: alignment of mission and goals (managing principles and philosophy), establishment of clear roles and responsibilities, establishment of the parameters of the process (phases, stages as well as risk elements), setting of expectations (reporting, accountability) and commitment to the necessary resources to realize goals.
- **Nuts and Bolts—Development:** This includes the issuance of policy direction by leadership, facilities planning, project prioritization and selection, programming and financial analysis, establishing the metrics, drafting the capital plan, revisions and updates to the plan during fiscal year, additions to or deletions from the plan during fiscal year, calendar, roles and responsibilities, and stakeholder involvement, collaboration, and communication.
- **Nuts and Bolts—Implementation:** This includes defining project controls, project execution, tools, documents and forms, tracking, change management, roles and responsibilities, and stakeholder involvement, collaboration, and communication.
- **Checks and Balances—Oversight:** This occurs throughout the duration of the ACP and includes refining the metrics, monitoring the roles and responsibilities of those involved (external or internal), and the performance of projects, fulfilling the reporting requirements and executing motivations.

**Criteria.** Rules or principles upon which something can be measured or evaluated.

**Executive Leader.** The individual at an airport responsible for setting policy, securing resources, developing and managing an organization and ultimately accountable for the programs, projects and operations of an airport. This person is accountable to approving and regulatory authorities for the delivery of services and the financial integrity of all operations, programs and services. The Executive Leader for an ACP can be the Director or CEO of the airport or the director of the airport function of a multi-purpose authority, depending on the size, structure and complexity of the airport (see Figure 5: Sample Organization Charts in Chapter 3).

**Flexibility.** A managing principle of willingness to adapt processes based on performance metrics and feedback received from stakeholders and openness to change in response to shifting political priorities and funding that can be expected during any business cycle.

**Finance Department.** The administrative department or division within an airport organization that provides financial management, accounting, and budgetary services, including preparation and monitoring of the annual operating budget, cash management and investments, fixed assets, debt, grants, and long range financial forecasts, and ensures compliance to all relevant financial and budgetary regulations. For the purposes of this Handbook, the business development function is assumed to be in either the Finance Department or the Planning Department.

**Goal.** The result or achievement toward which an organization's efforts are directed.

**Guideline.** A practice that is not mandatory and suggests a future course of action.

**Inputs.** There are three basic elements of inputs to a CACP process: Resources (personnel, funding and fixed assets), Tools (performance metrics, collaborative methods, technology), and Industry Experts (lessons learned, best practices and innovations). The inputs to a CACP process are the value base of an organization and fundamental in guiding the process and outcomes.

**Leadership.** Leadership in this Handbook refers to an organizational role within an airport that includes establishing a clear vision and defining a mission; communicating that vision and mission with both Internal and External Stakeholders; providing a framework for collaborating on goals and objectives and establishing a platform for managers to share information, knowledge, and methods to realize the vision and mission and achieve goals and objectives; and coordinating

and balancing conflicting interests of all stakeholders in an open and honest environment. Leaders are the people in charge of fulfilling this role and are qualified to establish the mission, goals and objectives; manage crises; and respond in creative ways in difficult situations.

**Leadership Team.** The senior managers within an airport organization responsible for, and directors of, the financial, engineering, planning, operating, administration, and information technology departments. The Leadership Team in a GA or small-hub airport can be the Capital Management Team (see Figure 5: Sample Organization Charts in Chapter 3).

**Lessons Learned.** A change in an organization's actions based on past experiences. It is necessary to understand and document why the action needs to be changed in addition to understanding what occurred that provoked the change. Lessons learned are used to refine performance metrics and targets in an agency.

**Management.** Controlling and directing the actions of an organization. This can be accomplished by one person or a multitude of people.

**Methods.** The mechanism by which both communication and collaboration is achieved either by human interaction or electronic documentation.

*Communication methods can be accomplished by*

- Regular, formal and informal meetings that describe who, what and when; specify outcomes and reporting formats and requirements.
- Dispensing information through hard copy or electronic documentation such as reports, plans, and performance metrics.

*Collaboration methods can be accomplished*

- In person. It is an interactive process where all parties are not exchanging information but ideas, and are using information to create something new. It typically involves the dynamic engagement of people (meetings where an exchange of ideas can occur) and/or can be supported though, not substituted with, tools like software.
- Through collaboration technology that creates a real-time, dynamic platform for multiple people to interact and exchange ideas at the same time.

**Motivations.** Actions taken by leaders and managers to oversee and evaluate progress on the CACP process, document best practices and lessons learned, optimize staff performance and the CACP process, and reward successes. For example, pay for performance systems can be established and merit increases can be awarded based on staff's ability to meet performance metrics related to delivering projects within scope, budget and schedule.

**Objective.** The ends that an organization sets out to achieve.

**Operations and Maintenance (O&M) Department.** The department or division within an airport organization with the responsibility to operate and/or maintain a specific facility or facilities owned or operated by the agency.

**Outputs.** The three elements of CACP process outputs include Results (targets achieved, benefits realized, value added), Products (written documentation and reports), and Motivations (buy-in, participation, support and recognition). The outputs are confirmation that a successful and innovative CACP process has been realized and communicated to stakeholders.

**Oversight.** An integral phase of the CACP process that occurs throughout the duration of the ACP where a designated department is responsible and accountable for monitoring targets, performance metrics, goals, project performance, finance and schedule for delivering the services stipulated in the ACP. Oversight involves the active engagement, interaction and collaboration between the parties responsible for executing and overseeing projects and programs to revisit

assumptions, targets and process so as to effectively manage the outcomes, meet expectations and adjust resources (human, financial and technological) accordingly to conform to program and project requirements.

**Partner.** A senior manager of a department responsible and accountable to collaborate with Task Leaders to deliver specific outcomes and products described in the CACP process. This individual is also responsible for developing an environment that encourages staff to communicate and collaborate, as well as commits to transparent and accountable participating in the CACP process to develop, implement and oversee the ACP.

**Performance Management.** The process of maintaining performance-based management and creating a results-driven environment to maximize the performance of airport organizations, processes and systems.

**Performance Metrics.** A quantitative or qualitative measure of an organization's activities and performance that supports a range of stakeholder needs from customers to employees. Traditionally, many metrics are finance-based, focused on the performance of the organization, linked with the agency's business strategy, and derived to measure critically defined success factors and demonstrate value. Developing performance metrics follows three basic steps: establish business framework (goals and objectives, process, products/outputs), develop measures and establish targets against which the results can be quantified or qualified.

**Planning Department.** A management department in an airport responsible for formulating detailed plans to establish a course of action to develop, fund and implement organization goals, objectives, strategies, programs and projects and accounts for the need to balance a variety of needs or demands with the available resources. For the purposes of this Handbook, the business development function is assumed to be in either the Finance Department or the Planning Department.

**Product.** The output or service produced by a step in the CACP process and delivered to stakeholders (whether internal or external). It takes the form of one of the following:

- Written document such as an agreement that details roles and responsibilities and/or a shared understanding [a.k.a., charter or Memorandum of Agreement/Memorandum of Understanding (MOA/MOU)]; a manual or guide outlining a process; a form or worksheet for data; a contract; a published article; a cost estimate or schedule; or an official deliverable like the ACP, a financial report, a progress report, or a "Report Card."
- A process, procedure, model, framework or system.
- Data such as forecasts, projections, allocations, performance metrics or targets.
- Event or activity such as a meeting where progress is documented, reviewed and evaluated, a presentation, a training program, an evaluation or an analysis.
- Award or benefit.

**Project Closeout.** The completion and settlement of the project that includes addressing all issues from turning the facility over the O&M Department and wrapping up contract issues with the consultant and the contractor to the finalizing of the financial information in order to confirm the total final project cost. These stages may include obtaining the O&M and training manuals, certificate of substantial completion, and certificate of occupancy, and addressing punch list items, contractual issues, functional issues and guarantee and warranty issues.

**Project Controls.** The features of a project that must be managed and controlled in order to deliver a project successfully. They include scope, cost, funding, schedule, quality, resources (labor and materials), communication and correspondence, risk, and procurement.

**Project Evaluation.** A method for collecting, analyzing, and using information to determine the manner and extent to which a program or a project achieves its intended objectives. The



assessment process integrates lessons learned and suggestions that are documented so that knowledge is captured and organized in a way that will benefit future projects.

**Project Request List.** A comprehensive, draft list of all potential projects including scope, order and total cost of projects and proposed funding sources by fiscal year.

**Reporting.** The process of demonstrating progress in achieving targets, goals and results, which can be done formally through documentation and reports or in meetings where information is exchanged and adjustments are made collaboratively, if necessary.

**Stakeholder.** Individuals and organizations that are actively involved in the ACP, a program or a project, or whose interests positively or negatively affect the result of the ACP, a program, project execution or project completion. They may also exert influence over the ACP, a program or a project and its results.

- **External Stakeholder.** Those individuals, groups of individuals or organizations that exist and operate outside of the airport organization that include financial, regulatory and Approving Agencies (e.g., FAA, TSA and outside boards and commissions), governmental agencies (i.e., federal, state and local), tenants (e.g., airlines, concessions, rental cars), and the general public (e.g., neighbors, advocacy groups, and the traveling public).
- **Internal Stakeholder.** Those individuals, groups of individuals or departments internal to the airport organization that may include the executive administration, operations and maintenance, administrative, and technical departments, and any board of directors internal to the airport. For example, in the CACP process an Internal Stakeholder may include the Leadership Team or for more complex airports, it may also include the CMT (see Figure 5: Sample Organization Charts in Chapter 3).

**Step Leader.** The senior manager of a department responsible and accountable to execute the elements of a process step (i.e., tasks), partnering with the appropriate departments, to deliver the specific outcomes and products described in the CACP process framework. This individual is responsible for developing an environment that encourages staff to communicate and collaborate, and for managing a transparent and accountable CACP process to develop, implement, and oversee the ACP.

**Technical Department.** The administrative department or division within an airport organization with the responsibility to execute technical functions such as planning, designing or building a project. This may include planning, engineering, environmental and information technology departments, depending upon the size, structure and complexity of the airport organization (see Figure 5: Sample Organization Charts in Chapter 3).

**Tracking.** A process using established mechanisms to follow performance against agreed-upon targets and measures.

**Transparency.** A managing principle where processes are clearly defined, decisions are well documented and information is easily available to all participants.

## Abbreviations and Acronyms

AAAE: American Association of Airport Executives

AASHO: American Association of State Highway Officials

AASHTO: American Association of State Highway and Transportation Officials

AC: Advisory Circular

ACI: Airports Council International

ACI-NA: Airports Council International-North America

ACIP: Airport Capital Improvement Program  
ACP: Airport Capital Plan  
ACRP: Airport Cooperative Research Program  
ADA: Americans with Disabilities Act  
AIP: Airport Improvement Program  
ALP: Airport Layout Plan  
ALPA: Airline Pilots Association  
AM: Asset Management  
AMP: Airport Master Plan  
AMT: Alternate Minimum Tax  
AOPA: Aircraft Owners and Pilots Association  
APM: Airport Project Manager  
APTA: American Public Transportation Association  
ARRA: American Recovery and Reinvestment Act  
ASCE: American Society of Civil Engineers  
ASME: American Society of Mechanical Engineers  
ASTM: American Society for Testing and Materials  
ATA: Air Transport Association  
ATA: American Trucking Associations  
BCA: Benefit-Cost Analysis  
BCAD: Broward County Aviation Department  
BEF: Budget Effectiveness Factor  
BIM: Building Information Modeling  
CACP: Collaborative Airport Capital Planning  
CBA: Cost-Benefit Analysis  
CBP: Collaborative Business Process  
CFC: Customer Facility Charge  
CFO: Chief Financial Officer  
CFR: Code of Federal Regulations  
CI: Conditions Index  
CIP: Capital Improvement Program  
CIRP: Citizen Implementation Review Panel  
CMD: Capital Management Division  
CMMS: Computerized Maintenance Management Systems  
CMT: Capital Management Team  
COO: Chief Operating Officer  
COTS: Commercial Off-the-Shelf  
CPM: Capital Program Management  
CPMS: Capital Program Management Systems  
CPRC: Capital Planning Review Committee  
CRM: Customer Relationship Management  
CTAA: Community Transportation Association of America  
CTBSSP: Commercial Truck and Bus Safety Synthesis Program  
DHS: U.S. Department of Homeland Security  
DMAIC: Define, Measure, Analyze, Innovate, Control  
DOE: U.S. Department of Energy  
DOT: Department of Transportation  
EA: Environmental Assessment  
EAM: Enterprise Asset Management  
EIS: Environmental Impact Statement  
EPA: Environmental Protection Agency



EPMS: Enterprise Project Management System  
ERP: Enterprise Resource Planning  
FAA: Federal Aviation Administration  
FHWA: Federal Highway Administration  
FMCSA: Federal Motor Carrier Safety Administration  
FONSI: Finding of No Significant Impact  
FRA: Federal Railroad Administration  
FTA: Federal Transit Administration  
GA: General Aviation  
GIS: Geographical Information System  
GOTS: Government Off-the-Shelf  
GPS: Global Positioning System  
IATA: International Air Transport Association  
ICAO: International Civil Aviation Organization  
IEEE: Institute of Electrical and Electronics Engineers  
IF: Importance Factor  
IRR: Internal Rate of Return  
ISTEA: Intermodal Surface Transportation Efficiency Act of 1991  
IT: Information Technology  
ITE: Institute of Transportation Engineers  
IWMS: Integrated Workplace Management System  
KPI: Key Performance Indicators  
KSA: Knowledge, Skills, Abilities  
LCCA: Life-Cycle Cost Analysis  
LEED: Leadership in Energy and Environmental Design  
LOB: Line of Business  
LTC: Legislative Transportation Committee  
Massport: Massachusetts Port Authority  
Metro Nashville: Metropolitan Government of Nashville and Davidson County, Tennessee  
MII: Majority-In-Interest  
MOA: Memorandum of Agreement  
MOU: Memorandum of Understanding  
MS: Microsoft  
MWAA: Metropolitan Washington Airports Authority  
NASA: National Aeronautics and Space Administration  
NASAO: National Association of State Aviation Officials  
NCFRP: National Cooperative Freight Research Program  
NCHRP: National Cooperative Highway Research Program  
NHTSA: National Highway Traffic Safety Administration  
NJDOT: New Jersey Department of Transportation  
NTSB: National Transportation Safety Board  
O&M: Operation and Maintenance  
PANYNJ: The Port Authority of New York and New Jersey  
PCI: Pavement Condition Index  
PDIS: Project Delivery Information System  
PF: Priority Factor  
PFC: Passenger Facility Charge  
PHX: City of Phoenix  
PM: Project Manager  
PMMS: Pavement Maintenance Management System  
PMO: Project Management Office

PMRS: Project Management & Reporting System  
PMS: Pavement Management System  
PPF: Project Prospectus Form  
PPM: Project Portfolio Management  
QC: Quality Control  
RDBMS: Relational Database Management System  
RFP: Request for Proposal  
RFQ: Request for Qualifications  
ROI: Return on Investment  
SaaS: Software-as-a-Service  
SAE: Society of Automotive Engineers  
SAFETEA-LU: Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users  
SOA: Services Oriented Architecture  
SOP: Standard Operating Procedures  
TAA: Tucson Airport Authority  
TCO: Total Cost of Ownership  
TCRP: Transit Cooperative Research Program  
TEA-21: Transportation Equity Act for the 21st Century (1998)  
TIM: Transportation Information Model  
TIP: Transportation Improvement Program  
TRB: Transportation Research Board  
TSA: Transportation Security Administration  
USDOT: United States Department of Transportation  
WBS: Work Breakdown Structure  
WSDOT: Washington State Department of Transportation  
XML: Extensible Markup Language





## APPENDIX C

# Model Documents

C-2	The Columbus Covenant
C-3	Massachusetts Port Authority: Capital Programming Calendar
C-4	Broward Aviation CIP Process: Proposed Roles & Responsibilities Map
C-5	City of Phoenix: Project Planning Process Flowchart
C-6	City of Phoenix: Annual CIP Budget Process
C-7	City of Phoenix: CIP Project Impacts on Operating Budget
C-8	Broward County Aviation Department: Business Case
C-14	City of Phoenix: CIP Priority Ranking Worksheet
C-15	Massachusetts Port Authority: Construction Closeout Checklist
C-16	Massachusetts Port Authority: Construction Closeout Flowchart
C-17	City of Phoenix: CIP Project Change Request Flow
C-18	Broward County Aviation Department: Airport Development Performance Measures



**The Columbus Covenant**

**Vision:**

**To be the best city in the nation in which to live, work, and raise a family**

**Mission:**

**To provide leadership that will inspire: high standards of excellence in the delivery of city services; a spirit of cooperation, pride and responsibility to achieve strong, safe and healthy neighborhoods; and, a shared economic prosperity and enhanced quality of life. We undertake this mission believing and knowing that we can make a difference for future generations.**

**Principles of Progress:**

- **Prepare our city for the next generation**
- **Promote a diverse and vibrant economy that offers everyone an opportunity to share in our prosperity**
- **Deliver measurable, quality public services and results to our residents**
- **Advance our neighborhoods**
- **Challenge ourselves to realize our city's promise and potential**

**Goals:**

- **Customer Service:** provide quality and efficient service delivery to customers using "best practices"
- **Neighborhoods:** engage and promote strong, distinct, and vibrant neighborhoods
- **Safety:** enhance the delivery of safety services
- **Economic Development and Technology:** provide an atmosphere that promotes job creation and economic growth in existing and emerging industries
- **Education:** encourage and promote participation in learning opportunities
- **Downtown Development:** develop a vibrant and thriving downtown that is recognized as an asset for the region
- **Peak Performance:** invest in all city employees and develop systems that support a high-performing city government

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**Signed on September 25<sup>th</sup>, 2000**

*Michael B. Coleman*

*Kevin L. Boyce*

*Michael C. Mentel*

*Mitchell J. Brown*

*Joel S. Taylor*

*Barbara McGrath*

*Melinda Carter*

*Matthew D. Habash*

*Charleta B. Tavares*

*G. Hannah Dillard*

*Jennifer L. Knight, FOP*

*Mike Vance, CMAGE*

*Linda Page*

*Doug Moore, Local 1632*

*Janet E. Jackson*

*Maryellen O'Shaughnessy*

*John R. Douth*

*Jesse R. Jones*

*Chester C. Christie*

*Hugh J. Dorrian*

*Richard W. Sensenbrenner*

*Wayne A. Roberts*

*William C. Myers*

*Mark Barbash*

*John Ferner, IAFF*

*James L. Stowe*

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**City of Columbus**

**Michael B. Coleman, Mayor**

FIGURE 2-2

## MASSACHUSETTS PORT AUTHORITY

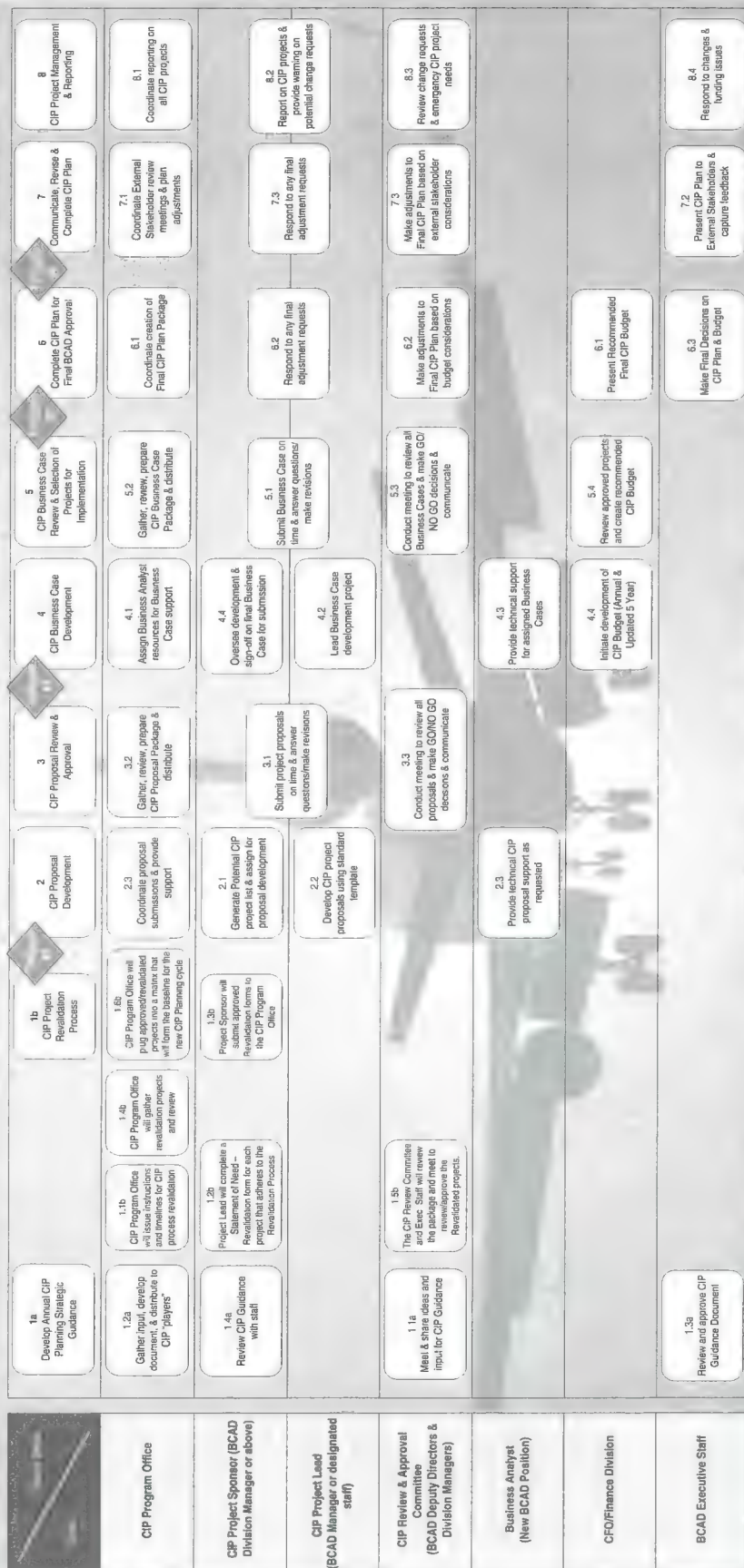
## Capital Programming Calendar

Date	Responsible Group	Action Completed	Deliverable to
August	Program Managers Operations Staff Engineering Staff Planning	Completion of inventory of Maintenance (review most recent Annual Report of Conditions by the Trust Engineer) and Improvement/Extension needs for each program.	Program Managers Operations Staff Engineering Staff Department Directors
August	CEO/Executive Director Senior Staff	Reaffirm Authority-wide Strategic Plan Goals and Objectives. Issue policy direction for program.	All Staff
September	Program Managers Budget Unit	Distribute memo of instruction with calendar for program targets, and program proposals.	Department Directors
October	Program Managers Operations Staff Engineering Staff	Meetings to review the status of projects in existing Capital Program and update program accordingly.	Budget Unit Program Managers Engineering Staff Operations Staff
November	Program Managers Operations Staff Engineering Staff	Identification and evaluation of a range of solutions and selection of best alternatives to meet needs. Documentation of proposed projects on Project Prospectus Forms and assignment of project code.	Program Managers Operations Staff
November-January	Program Managers Operations Staff Engineering Staff	Review of maintenance portion of proposed operating budget with proposed Capital Maintenance Reserve projects for consistency.	Program Managers Operations Staff
November-January	Program Managers Operations Staff Engineering Staff	Prioritization of Maintenance Reserve projects within each program and capital equipment requests exceeding \$100K. Evaluation of tradeoffs between programs and establishment of the proposed MR Capital Budget. Deliver to Budget Unit with cash flow projections.	Program Managers Operations Staff Budget Unit Department Directors
November-January	Program Managers Operations Staff Engineering Staff	Prioritization of I&E projects within each program. Evaluation of tradeoffs between programs and establishment of proposed I&E Capital Budget. Delivery to Budget Unit with cash flow projections.	Program Managers Operations Staff Budget Unit Department Directors
January	Budget Unit	Set next year's deposit to MR Fund. Set transfer to Capital Budget Account by June Board.	CEO/Executive Director Secretary-Treasurer
January	Budget Unit Senior Staff Operations Staff Program Managers	Evaluation of proposed program and tradeoffs between programs and finalization of the Annual Capital Program.	CEO/Executive Director
February	CEO/Executive Director	Presentation and approval of Capital Program.	Members of the Board
After February Approval	Capital Programs	Distribution and implementation of the new Capital Program.	CEO/Executive Director All Staff

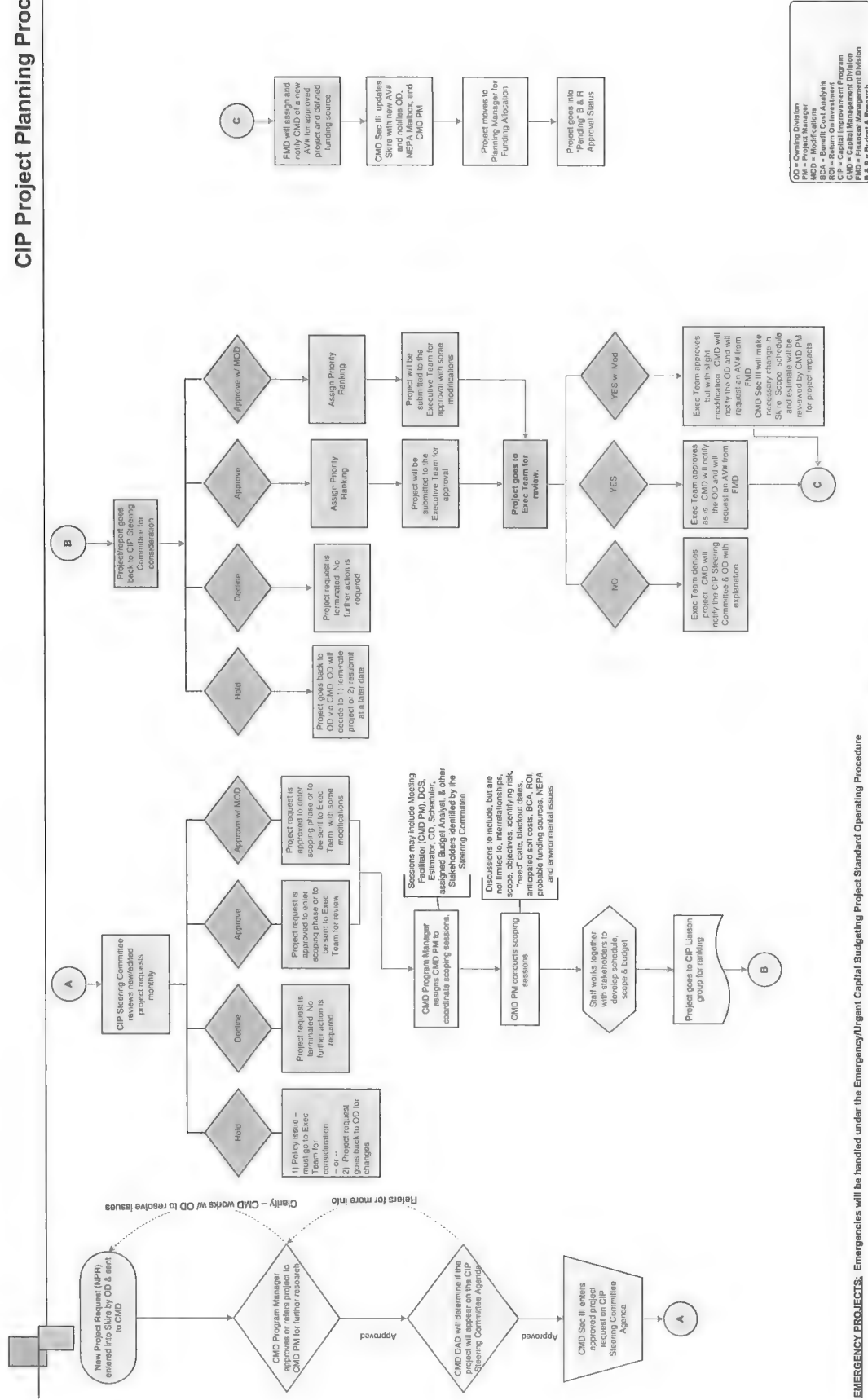


# Broward Aviation CIP Process: Proposed Roles & Responsibilities Map

BROWARD  
FLORIDA



# CIP Project Planning Process



**EMERGENCY PROJECTS:** Emergencies will be handled under the Emergency/Urgent Capital Budgeting Project Standard Operating Procedure

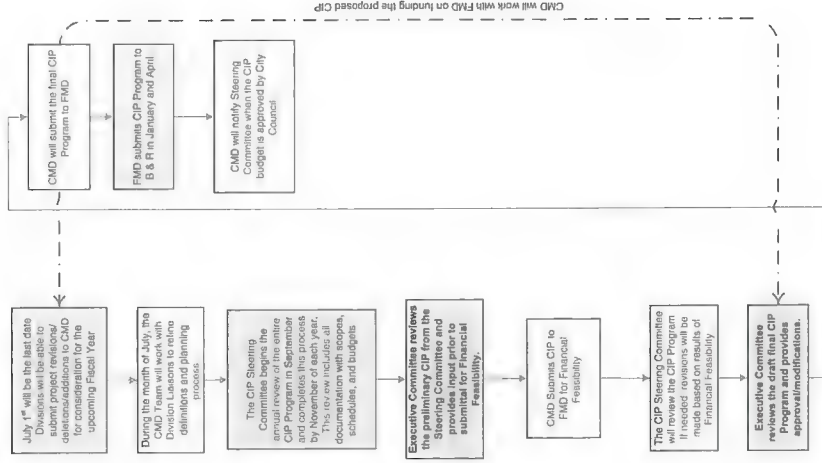
**Note:** Intermittent Financial Capacity Analysis may be performed. Approved, as well as "pending" projects may be considered in the Financial Feasibility Analysis.

# Annual CIP Budget Process

CAPITAL IMPROVEMENT PROGRAM (CIP) FISCAL YEAR CALENDAR											
JULY			AUGUST			SEPTEMBER			OCTOBER		
<ul style="list-style-type: none"> <li>Year End Update to Executives</li> <li>CIP Steering Committee Meeting</li> <li>Meetings with Division Liaisons</li> </ul>			<ul style="list-style-type: none"> <li>CIP Steering Committee Meeting</li> <li>Meetings with Division Liaisons</li> </ul>			<ul style="list-style-type: none"> <li>CIP Steering Committee Meeting</li> <li>Meetings with Division Liaisons</li> <li>CIP Liaison Briefing Meetings</li> </ul>			<ul style="list-style-type: none"> <li>CIP Steering Committee Meeting</li> <li>Meetings with Division Liaisons</li> </ul>		
NOVEMBER			DECEMBER			JANUARY			FEBRUARY		
<ul style="list-style-type: none"> <li>CMD prepares draft CIP</li> <li>Quarterly Update to Executives</li> <li>CIP Steering Committee Meeting</li> <li>Meetings with Division Liaisons</li> <li>CIP Steering Committee Workshop</li> <li>CIP Due to ADOT</li> </ul>			<ul style="list-style-type: none"> <li>Aligns Capital Investment Program (ACIP) due to the FAA on November 30<sup>th</sup></li> <li>CMD updates draft CIP</li> <li>Initial meetings and CIP feasibility with FMD</li> <li>Draft CIP Reviewed with Executive Team</li> <li>CIP Steering Committee Meeting</li> <li>Meetings with Division Liaisons</li> </ul>			<ul style="list-style-type: none"> <li>Meetings between CMD and FMD continue throughout the month</li> <li>Draft CIP reviewed with Executives</li> <li>Quarterly Update to Executives</li> <li>Preliminary CIP budget due to B &amp; R</li> <li>CIP Steering Committee Meeting</li> <li>Meetings with Division Liaisons</li> </ul>			<ul style="list-style-type: none"> <li>B &amp; R reviews the initial draft of the CIP</li> <li>CMD revises the CIP per instructions from FMD &amp; R. Consults with the Divisions</li> <li>CIP Steering Committee Meeting</li> <li>Meetings with Division Liaisons to discuss draft carry over list</li> <li>February 15<sup>th</sup> - submit project listing to Risk Management / Insurance policy</li> </ul>		
MARCH			APRIL			MAY			JUNE		
<ul style="list-style-type: none"> <li>CIP Steering Committee discusses proposed changes to the CIP</li> <li>CMD continues to meet with FMD to make necessary changes to the CIP</li> <li>March 15<sup>th</sup> - last day for procurement of Capital assets</li> <li>March 15<sup>th</sup> - Finance Purchasing bids over \$10,000 due</li> <li>March 15<sup>th</sup> - carryovers are due by Divisions to Capital Management</li> <li>CIP Steering Committee Meeting</li> <li>Meetings with Division Liaisons</li> </ul>			<ul style="list-style-type: none"> <li>FMD reviews the CIP and submits carry-overs to B &amp; R</li> <li>Draft final CIP reviewed with Executives &amp; receive approval to submit to B &amp; R</li> <li>Quarterly Update to Executives</li> <li>Divisions kick off project planning for upcoming fiscal year</li> <li>Final CIP submitted to B &amp; R by Fiscal</li> <li>CIP Steering Committee Meeting</li> <li>Meeting with Division Liaisons</li> </ul>			<ul style="list-style-type: none"> <li>CIP database updated to include approved carry-overs</li> <li>May 1<sup>st</sup> - last day for EAS contracting to be submitted</li> <li>May 15<sup>th</sup> - last day to submit for requirements contracts</li> <li>CIP Steering Committee Meeting</li> <li>Meeting with Division Liaisons</li> </ul>			<ul style="list-style-type: none"> <li>June 1<sup>st</sup> - EAS notice to proceed (NTPS) due</li> <li>Council adopts the CIP</li> <li>CIP Steering Committee Meeting</li> <li>Meeting with Division Liaisons</li> <li>ACIP Planning Begins</li> <li>Divisions prepare and submit new CIP Project Requests to the Capital Management Division (Performed throughout the year)</li> </ul>		

## Please note:

- Divisions can submit project change requests throughout the year; however, there will be a cut off date in February in order to prepare the final CIP for Financial Management Division review.
- Financial feasibility will be performed throughout the year. Key dates for feasibility to be determined.



**CIP PROJECT IMPACTS ON OPERATING BUDGET**

CIP AV #		AV12345678			CARD #:		1		
CIP Project Name		OWNING DIVISION		OPERATING START DATE		DIVISION RANK		COST CENTER	
Test Project/# 1		Facilities & Services		07-01-2009		1		6656110000	
<b>LABOR REQUIREMENTS</b> <small>Note: Operational Readiness Costs are not applicable for Labor Requirements (Personal Services) as labor costs charged to CIP are through Internal Charges &amp; Credits. Personal Services only apply to operating cost centers.</small>									
# of POSITIONS	CLASS TITLE	JOB CODE	STEP	# OF MONTHS	MONTHLY SALARY	OPERATIONAL READINESS COSTS	FIRST YEAR COSTS	ANNUAL RECURRING COSTS	
3	Chief Construction Inspectors	19020	3	12	\$4,706.00		\$ 171,298	\$ 176,193	
3	Total Positions	Total Salaries				\$ -	\$ 171,298	\$ 176,193	
		ESTIMATED FRINGE = 39%					\$ 66,806	\$ 68,715	
<b>TOTAL LABOR REQUIREMENTS:</b>						\$ -	\$ 238,105	\$ 244,908	
<b>CONTRACTUAL SERVICES</b> (Cost Element Range: 510000 - 519999)									
COST ELEMENT	QTY	CONTRACTUAL SERVICES DESCRIPTION			\$ per UNIT	OPERATIONAL READINESS COSTS	FIRST YEAR COSTS	ANNUAL RECURRING COSTS	
						\$300.00			
<b>TOTAL CONTRACTUAL SERVICES:</b>						\$ 300	\$ -	\$ -	
<b>COMMODITIES</b> (Cost Element Range: 520000 - 529999) - These are tangible items under \$5000 each.									
COST ELEMENT	QTY	COMMODITY DESCRIPTION			\$ per UNIT	OPERATIONAL READINESS COSTS	FIRST YEAR COSTS	ANNUAL RECURRING COSTS	
520250	6	Computers			\$4,000.00		\$ 24,000		
520240	3	Office Equipment			\$1,400.00		\$ 4,200		
<b>TOTAL COMMODITIES:</b>						\$ -	\$ 28,200	\$ -	
<b>CAPITAL OUTLAY</b> (Cost Element Range: 530999 - 539999) - These may be tangible items over \$5000 each.									
COST ELEMENT	QTY	CAPITAL ITEM DESCRIPTION			\$ per UNIT	OPERATIONAL READINESS COSTS	FIRST YEAR COSTS	ANNUAL RECURRING COSTS	
530200	1	Staff Car - Compact			\$22,000.00		\$ 22,000		
<b>TOTAL CAPITAL OUTLAY:</b>						\$ -	\$ 22,000	\$ -	
<b>INTERNAL CHARGES &amp; CREDITS</b> (Cost Elements beginning with "90" or "966")									
COST ELEMENT	QTY	DESCRIPTION			\$ per UNIT	OPERATIONAL READINESS COSTS	FIRST YEAR COSTS	ANNUAL RECURRING COSTS	
<b>TOTAL CREDITS:</b>						\$ -	\$ -	\$ -	
<b>GRAND TOTAL</b>						\$ 300	\$ 288,305	\$ 244,908	

## Business Case

Complete this section following approval of the Statement of Need by the CIP Review Committee in Tollgate 1.

Who is helping develop this project? Who is going to help implement it? List key project team members below.

Team Member	Team Member Division	Team Member Phone

### Related Projects

Are there other capital projects in the current or proposed budget that impact or are impacted by this project?

☐ I need to change the budget from what was submitted above.

### Estimated Budget - Business Case Revision

Use the drop-down list below to enter your estimated project budget. Add additional rows as needed.

Budget Element	Pre-FY2011 Investment	FY2011	FY2012	FY2013	FY2014	FY2015	After 2015
<div> <div></div> <div>other budget element?</div> </div>							
	\$0	\$0	\$0	\$0	\$0	\$0	\$0

What is the total revised estimated project budget, including all years and all elements?

\$0

 File Attachment

What type of project budget estimate is this?

Enter other estimate type

☐ I need to change the schedule from what was submitted above.

**Estimated Schedule - Business Case Revision**

Complete the table below with the milestone elements that are appropriate to the project. Use the row at the end to fill in any milestones relevant to your project that do not appear in the table. Add additional rows as needed.

Project Kickoff:	
Study Kickoff:	
Study Completion:	
Environmental Review Kickoff:	
Environmental Review Completion:	
Land Acquisition:	
Design Kickoff:	
Design Completion:	
Construction Kickoff:	
Construction Completion:	
other milestone name?	

**Environmental Review - Completed by Planning Division**

Potential Review Level Required?

- ☐ None
 ☐ Categorical Exclusion
 ☐ Environmental Assessment
 ☐ Environmental Impact Statement
 ☐ Other

Enter Estimate of Review Time Required:

Comments:

 File Attachment



### Operating Benefits

What financial benefits (savings, additional revenue, etc.) are associated with the project?

Benefit Driver	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Contractual Services					
Equipment - New(Incremental)					
Equipment - Refresh or Replacement					
Maintenance					
Ongoing Support					
Personnel Costs (including overtime)					
Revenue - New or Additional					
Training					
Utilities					

Other Benefit other benefit name?					
<b>TOTAL BENEFITS</b>	\$0	\$0	\$0	\$0	\$0

How did you arrive at the benefits you entered above?

### Operating Costs

What implementation and/or operating costs not captured in the capital costs above are associated with the project?

Cost Driver	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Contractual Services					
Equipment - New(Incremental)					
Equipment - Refresh or Replacement					
Implementation Costs					
Maintenance					
Ongoing Support					
Personnel Costs (including overtime)					
Revenue Loss					
Training					
Utilities					
Other Non-Capital Costs					

<b>TOTAL NON-CAPITAL COSTS</b>	\$0	\$0	\$0	\$0	\$0
--------------------------------	-----	-----	-----	-----	-----

How did you arrive at the non-capital costs you entered above?

**Business Case Analysis - Completed by CIP Office**

Using data provided elsewhere in the form and the attached spreadsheet, the Total Benefits, Total Costs, Return on Investment, Net Present Value, and Payback Period for your project is calculated.

Measure	Pre-2011 Investment	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Total Benefits Realized						
Total Cost						
Return on Investment (ROI)						

Net Present Value:

Payback in Years:

ROI Form completed by CIP Office:

 File Attachment
**Business Case For Tracking:**

- ☐ Tollgate 2: Ready for Sponsor Review  
☐ Tollgate 2: Ready for All Reviews  
☐ Tollgate 2: Ready for CIP Approval  
☐ Tollgate 2: Completed

**Sponsor's Project Review Comments - Business Case**

To be completed by reviewers following submission by the Project Lead. Please review the content of the form. If you approve of the overall project, please check the box below. Enter any review comments (including reasoning if you do not approve), your name, and the date of your review in the table provided.

☐ Project Sponsor Approves

Project Sponsor Review Comments:

Project Sponsor:

Sponsor Review Date:



**Project Review Comments - Business Case**

To be completed by reviewers following submission by the Project Lead and approval by the Project Sponsor. Please review the content of the form and enter your review comments, name, and the date of your review below.

Planning Review Comments:	Planning Reviewer:	Planning Review Date:	
Airport Development Review Comments:	Airport Development Reviewer:	Airport Development Review Date:	
Maintenance Review Comments:	Maintenance Reviewer:	Maintenance Review Date:	
Security Review Comments:	Security Reviewer:	Security Review Date:	
Operations Review Comments:	Operations Reviewer:	Operations Review Date:	
Business Review Comments:	Business Reviewer:	Business Review Date:	
Information Systems Comments:	Information Systems Reviewer:	Information Systems Review Date:	
Finance Review Comments:	Finance Reviewer:	Finance Review Date:	
Executive Review Comments:	Executive Reviewer:	Executive Review Date:	
Other Review Comments (please enter reviewing section name along with comments):	Reviewer Name:	Review Date:	

### Business Case Disposition

CIP Review Committee Decision:

Decision Date:

Decision Comments:

 File Attachment

☐ CIP Office Only, Check if Tollgate 2 Complete



City of Phoenix

CAPITAL MANAGEMENT DIVISION

Date \_\_\_\_\_

**OWNING DIVISION**  
**CIP PRIORITY RANKING WORKSHEET**

Project Number \_\_\_\_\_

Project Name \_\_\_\_\_

Owning Division \_\_\_\_\_

Fund Source \_\_\_\_\_

**Instructions:** Using the Project Prioritization Criteria Scoring Matrix, please score the above referenced project using **one** of the criteria listed. If the project can fall into other categories, please list it below and provide an explanation in the space provided.

	PRIORITY RANKING		
	100	50	30
<b>Mandate</b> (code compliance / TSA requirement/FAA requirement/ADOT requirement, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Safety</b> (life safety/imminent health/environmental)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Security</b> (upgrade to existing systems, e.g. badging)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Level of Service</b> (project is critical to operations/customer service)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Revenue Generation / Cost Reduction</b> (project increases revenue – ROI analysis, use 5% discount factor over 5 – 10 years as required)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Noise Mitigation/Community Relations</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Land Acquisition</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Asset Preservation / Maintain Existing Facilities</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Other Qualifying Criteria	Reason
(		
(		
(		
(		
(		

**Figure 3-20**  
**MASSACHUSETTS PORT AUTHORITY**

Construction Closeout Checklist

Project No.: \_\_\_\_\_ Project Name: \_\_\_\_\_  
General Contractor: \_\_\_\_\_ Architect/Engineer: \_\_\_\_\_

PM's Initials	Event	Date
_____	GC submits a List of Outstanding Work to RE and Engineer .....	_____
_____	GC submits signed As-Built Drawings to the Engineer .....	_____
_____	Engineer submits properly formatted Record Drawings to MPA GIS Center .....	_____
_____	MPA Compliance Dept. approves DBE participation by GC and verification that all required Compliance reports, including those of all subcontractors, have been submitted .....	_____
_____	GC submits Operation and Maintenance Manuals to the Engineer and Facility Managers .....	_____
_____	GC conducts training for Facility Manager and Operators .....	_____
_____	GC submits Guarantees/Warranties to Engineer/Facility Representative .....	_____
_____	GC turns over Attic Materials to the MPA Facility Manager .....	_____
_____	GC returns Security Identification Badges and Apron Permits to Aerodrome Office.....	_____
_____	GC returns loaned Communication Equipment to Massport (Aviation Operations) .....	_____
_____	GC gets Certificate of Compliance from the Conservation Commission and submits to Engineer .....	_____
_____	Engineer completes Preliminary Inspection (before acceptance for occupancy).....	_____
_____	GC corrects substantive items.....	_____
_____	RE and Engineer prepare Punch List .....	_____
_____	Engineer inspects and issues Certificate of Substantial Completion .....	_____
_____	State Building Inspector Issues Certificate of Occupancy .....	_____
_____	GC completes working off Punch List.....	_____
_____	PM, Engineer and GC complete Final Inspection of Project with Client .....	_____
_____	MPA, GC and Engineer sign Massport Certificate of Final Inspection, Release and Acceptance .....	_____
_____	Final Pay Requisition submitted by GC and paid by Massport.....	_____
_____	Ribbon Cutting Ceremony .....	_____
_____	Submit General Contractor Evaluation .....	_____
_____	Engineer submits Master Project File, including Record Drawings, to the MPA Project Manager .....	_____
_____	PM pays Consultant and submits (Engineer) Evaluation to Assistant Director, Business Strategy .....	_____
_____	MPA submits Consultant (Engineer) Evaluation .....	_____
_____	PM submits Project Closeout Memo to Assistant Director, Project Controls, stating all work completed, all payments made.....	_____
_____	Mail Project Evaluation form to customer for comments .....	_____

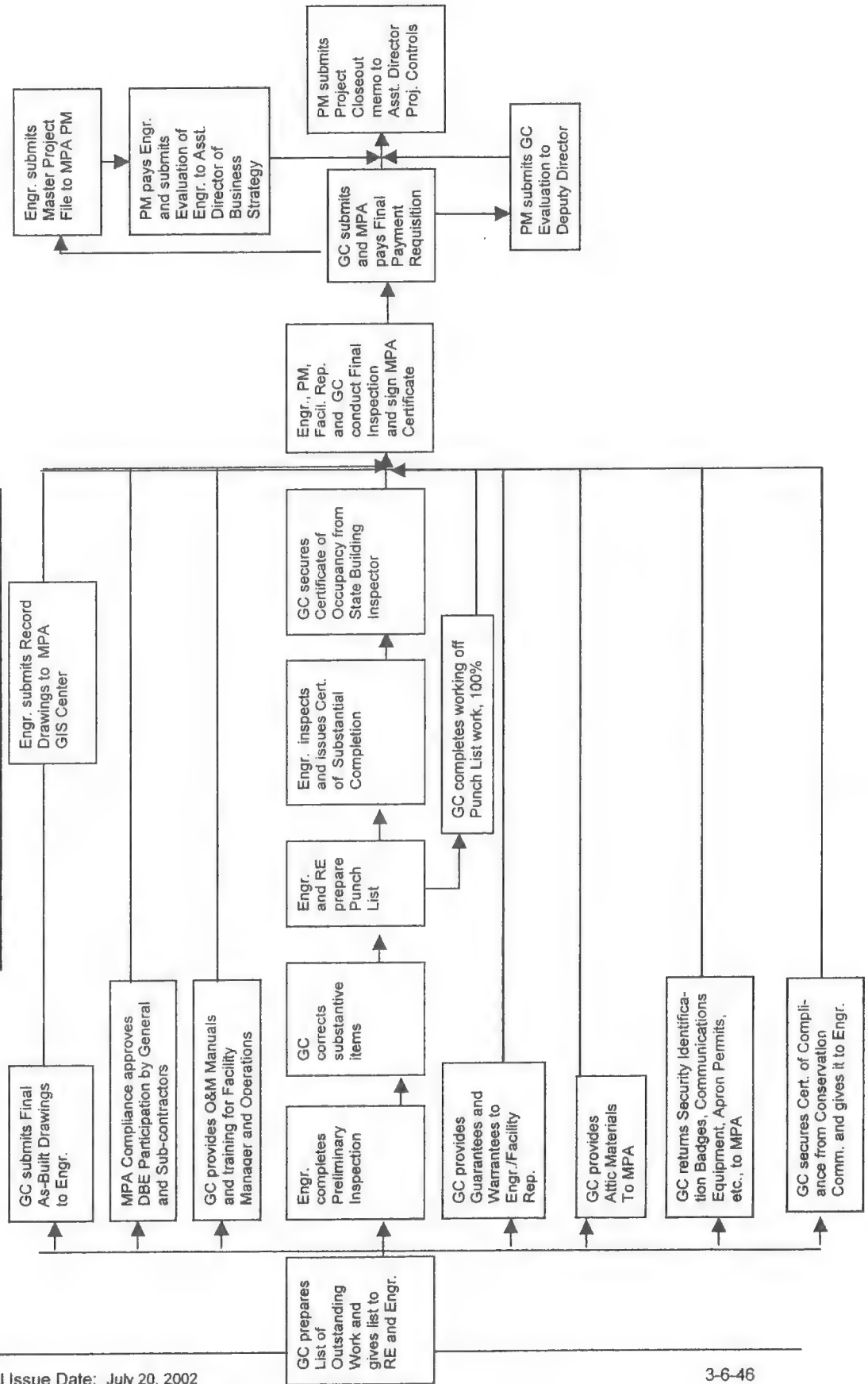
Original Issue Date: July 20, 2002  
Revision Date: December 12, 2003

3.6-45



Figure 3-20A

**CONSTRUCTION CLOSEOUT FLOWCHART**



Wednesday, July 30, 2008



## Section

**Airport Development****GOAL STATEMENT**

To provide planning, design and construction, environmental, and noise services for the Fort Lauderdale-Hollywood International Airport and the North Perry Airport, on time and within budget, exceeding expectations and with input from the community.

**PERFORMANCE MEASURES**

	FY 08 Actual	FY 09 Budget	FY 10 Projected
<b>Capital Improvement Program</b>			
Percent new projects with Green Initiatives (may include LEED)	N/A	N/A	100
Percent projects that are within budget	N/A	N/A	100
Percent projects that are within schedule	N/A	N/A	100
Percent of construction projects within 5% change order allowance	N/A	N/A	100
Percent of contracts not meeting small business goals	N/A	N/A	0.
<b>Airport Expansion Program</b>			
Percent new projects with Green Initiatives (may include LEED)	N/A	N/A	100
Percent projects that are within budget	N/A	N/A	100
Percent projects that are within schedule	N/A	N/A	100
Percent of construction projects within 5% change order allowance	N/A	N/A	100
Percent of contracts not meeting small business goals	N/A	N/A	0.
<b>Planning</b>			
Percent of bi-monthly inspections completed annually	N/A	N/A	100
Percent of inquiries on noise issues responded to within 2 business days of inquiry	N/A	N/A	100
Percent of data requests completed within deadline	N/A	N/A	75
Percent of contracts not meeting small business goals	N/A	N/A	0.

**PROGRAM DESCRIPTION:**

The Airport Development section encompasses three programs; the Airport Expansion Program, the Capital Improvement Program, and Planning. Airport Development is responsible for preparing and implementing the Capital Improvement Program and development of the Airport Master Plans for both County-operated airports; managing large-scale capital projects; managing planning and environmental contracts; managing environmental compliance and remediation programs; managing the noise mitigation, compliance, and monitoring programs; reviewing transportation planning studies involving aviation impacts; and reviewing development applications for unincorporated areas and countywide plat applications for aviation impacts.



## APPENDIX D

# Sample Forms

D-2	Measuring Collaboration Scale
D-5	Project Data Worksheet
D-7	Project Status Report
D-8	Designer Evaluation Form for Design Services
D-10	Designer Evaluation Form for Construction Phase Services
D-12	Contractor Evaluation Form
D-15	Internal Stakeholder Project Evaluation Form

**SAMPLE FORM 1a****MEASURING COLLABORATION SCALE <sup>1</sup>**

Rate your partner on their collaboration skills throughout the ACP process. Please see the "Methods" sections of the ACRP 01-10 COLLABORATIVE AIRPORT CAPITAL PLANNING HANDBOOK for recommended collaboration techniques.

Rater: \_\_\_\_\_

Department: \_\_\_\_\_

Role: ☐ Leader ☐ Partner

	COLLABORATION RATING					
	0	1	2	3	4	5
	No collaboration	Aware of the process, Loosely defined roles, Little communication, All decisions are made independently	Provide information to each other, Somewhat defined roles, Formal communication, All decisions are made independently	Share information and resources, Defined roles, Frequent communication, Some shared decision making	Share ideas, Share resources, Frequent and prioritized communication, All members have a vote in decision making	Members belong to one system, Frequent communication is characterized by mutual trust, Consensus is reached on all decisions
<b>Responsible Parties</b>						
Executive Leader						
Leadership Team						
CMT						
Technical Departments						
Finance						
O & M						

<sup>1</sup> Adapted with permission from Brian Frey et. al., "Measuring Collaboration Among Grant Partners," American Journal of Evaluation, Vol. 27, No. 3 (September 2006), pp. 383-392.

## SAMPLE FORM 1b

MEASURING COLLABORATION BY STEP <sup>1</sup>

INSTRUCTIONS: Rate your partner on their collaboration skills for the elements and steps of the 4 components of the CACP. Please see the "Methods" section of Chapters 4 through 6 for recommended collaboration techniques.

Rater: \_\_\_\_\_

Department: \_\_\_\_\_

Role: ☐ Leader ☐ Partner

Responsible Party: \_\_\_\_\_

ELEMENTS & STEPS OF THE CACP COMPONENTS		RESPONSIBLE PARTY					
		Executive Leader	Leadership Team	CMT	Technical Departments	Finance	O & M
<b>LEADERSHIP</b>							
L-1	Provided environment of collaboration						
L-2	Agency Policy						
L-3	Organization						
L-4	Resources						
L-5	Management						
<b>DEVELOPMENT</b>							
D-1	ACP Policy						
D-2	Financial Planning and Management						
D-3	Capital Planning and Management						
D-4	Programming						
D-5	Airport Capital Plan						
<b>IMPLEMENTATION</b>							
I-1	Project Planning and Definition						
I-2	Project Design						
I-3	Construction						
I-4	Project Closeout and Evaluation						
I-5	Operation						
<b>OVERSIGHT</b>							
O-1	Performance Management						
O-2	Evaluation						
O-3	Meetings and Reports						
O-4	Motivations						
<b>TOTAL</b>							
Divided by 19 (number of elements and steps)		19	19	19	19	19	19
<b>AVERAGE SCORE</b>							

## KEY:

0 - No collaboration

1 - Aware of the process, Loosely defined roles, Little communication, All decisions are made independently

2 - Provide information to each other, Somewhat defined roles, Formal communication, All decisions are made independently

3 - Share information and resources, Defined roles, Frequent communication, Some shared decision making

4 - Share ideas, Share resources, Frequent and prioritized communication, All members have a vote in decision making

5 - Members belong to one system, Frequent communication is characterized by mutual trust, Consensus is reached on all decisions

<sup>1</sup> Adapted with permission from Brian Frey et. al., "Measuring Collaboration Among Grant Partners," American Journal of Evaluation, Vol. 27, No. 3 (September 2006), pp. 383-392.

INSTRUCTIONS: Rate your partner on their collaboration skills for the actions in Step 2 (Design) of the Implementation phase of the CACP. Please see the "Methods" section of Chapters 4 through 6 for recommended collaboration techniques.

## SAMPLE FORM 1c

MEASURING COLLABORATION BY ACTION <sup>1</sup>

Rater: \_\_\_\_\_

Department: \_\_\_\_\_

Role: ☐ Leader ☐ Partner

Responsible Party: \_\_\_\_\_

		RESPONSIBLE PARTY					
Actions in the Implementation Phase: Step 2 (Design)		Executive Leader	Leadership Team	CMT	Technical Departments	Finance	O & M
Action 1	Stakeholder Involvement						
Action 2	Procure Consultant						
Action 3	Contract Management						
Action 4	Quality Control						
Action 5	Design						
Action 6	Risk Management						
Action 7	Change Management						
Action 8	Budget Estimate						
Action 9	Schedule						
Action 10	Cash Flow						
TOTAL							
Divided by 10 (number of main actions in Design)		10	10	10	10	10	10
AVERAGE SCORE							

## KEY:

0 - No collaboration

1 - Aware of the process, Loosely defined roles, Little communication, All decisions are made independently

2 - Provide information to each other, Somewhat defined roles, Formal communication, All decisions are made independently

3 - Share information and resources, Defined roles, Frequent communication, Some shared decision making

4 - Share ideas, Share resources, Frequent and prioritized communication, All members have a vote in decision making

5 - Members belong to one system, Frequent communication is characterized by mutual trust, Consensus is reached on all

<sup>1</sup> Adapted with permission from Brian Frey et. al., "Measuring Collaboration Among Grant Partners," American Journal of Evaluation, Vol. 27, No. 3 (September 2006), pp. 383-392.



## SAMPLE FORM 2 PROJECT DATA WORKSHEET

### PROJECT DESCRIPTION

Project Title:	Project Number:
Facility:	
Requested by:	Date Requested:
Project Type:	Investigation Level:

### Project Summary:

--

### Project Justification:

--

### PROJECT ALTERNATIVES

Alternative:	Comments:
1. No Action	
2.	
3.	

### ESTIMATED COST AND SCHEDULE

Project Phase	Funding Requirement	Total Project Estimate	Start Date	Duration
Pre-Design	\$	\$		
Design	\$	\$		
Construction Services	\$	\$		
Construction	\$	\$		
Environmental	\$	\$		
Legal	\$	\$		
Police & Fire Details	\$	\$		
Furniture & Equipment	\$	\$		
Contingency	\$	\$		
<b>TOTAL</b>	<b>\$</b>	<b>\$</b>		

### SCHEDULE INFORMATION

Schedule Flexibility:	Y / N		
Completion Date:	From:	To:	

### Constraints:

--

### Future Projects on Asset:

--

### Relationship to Other Projects:

--

### FINANCIAL INFORMATION

Estimate and Description of Incremental Revenue:	
Cost Impact On Operations:	
Proposed Funding Sources (Finance Code):	Percent Allocation:
Code #1	%

Code #2	%
---------	---

**SIGNIFICANT CONTRIBUTIONS TO AGENCY GOALS AND OBJECTIVES**

Project Goal:	Contribution:
1. Goal #1	
2. Goal #2	
3. Goal #3	

**ENVIRONMENTAL AND COMMUNITY IMPACTS**

Level of Environmental Impact:		
Air Quality: L / M / H	Water Quality: L / M / H	Mitigation: Y/N
Noise: L / M / H	Congestion: L / M / H	

**OTHER PROJECT CONTRIBUTIONS**

Public Safety Urgency:	
Cited in Existing Condition Report:	
Regulatory/Other Requirement:	
Sustainable Development Initiative:	
Improve Operating Efficiency:	

**RISK FACTORS**

Has Study Been Conducted?	Y / N
Date of Study:	
Summary of Study Results:	
Risk Associated with Scope:	L / M / H
Risk Associated with Cost Estimate:	L / M / H
Tenant Dependency of Project:	Y / N
Environmental Risk/Uncertainty:	L / M / H
Financial Risk/Uncertainty:	L / M / H
Environmental Assessment Complete:	Y / N
Long Term Business Viability Assessment:	Y / N

Updated By:	Date:
-------------	-------

## SAMPLE FORM 3 PROJECT STATUS REPORT

**Period:**

From:	To:
-------	-----

**Project Manager:**

Name:	Department:
-------	-------------

**Work Completed This Period:**

1.	
2.	

**Activities To Be Completed Next Period:**

1.	
2.	

**Notable Accomplishments:**

1.	
2.	

**Issues and Resolutions:**

Issues:	Resolutions:
1.	
2.	
3.	

**Schedule Update:**

--

**Finance Update:**

--

**Prepared by:**

Name:	Date:
-------	-------

### SAMPLE FORM 4 DESIGNER EVALUATION FORM FOR DESIGN SERVICES

Study/Design Consultant:	
Date Completed:	
Project Title:	
Project No.:	
Contracting Agency:	
Project Manager:	
General Contractor:	
Signature Public Agency Official:	

**Performance Rating Scale:**

Poor	Fair	Good	Excellent
1	2	3	4

**1. Technical Competence.** Did the Designer:

- Demonstrate knowledge and competence in area of technical expertise?
- Demonstrate knowledge of and compliance with regulatory requirements?
- Know the facility and its operations?
- Collect data needed in an efficient manner?
- Phase the project well?
- Oversee the project team and motivate staff well?
- Deliver quality documents and deliverables?
- Comments:

_____	x .25 =	_____
Rating	Weight	Score

**2. Management/Coordination of Consultants.** Did the Designer:

- Coordinate sub-consultant work?
- Oversee the sub-consultants in an accurate manner?
- Comments:

_____	x .10 =	_____
Rating	Weight	Score

**3. Project Controls.** Did the Designer:

- Effectively manage the schedule and meet deadlines?
- Control costs of their work?
- Meet project budget constraints?
- Comments:

_____	x .05 =	_____
Rating	Weight	Score

**4. Problem Resolution.** Did the Designer:

- Provide solutions that were creative and appropriate in a timely manner?
- Suggest solutions that were cost-effective?
- Comments:

_____	x .15 =	_____
Rating	Weight	Score

**5. Quality of Contract Documents.**

- Were the Designer's drawings adequately coordinated with the sub-consultant's work?
- Were the code requirements met and well documented?
- Was the information systematic, logical, and easy to read?
- Were the contract documents complete and clear?
- Comments:

_____	x .25	=	_____
Rating	Weight		Score

**6. Communication Skills.**

- Was the Designer's written communication effective and informative?
- Was the Designer's technical capacity in terms of electronic technology and information management adequate for the needs of the project?
- Did the Designer effectively communicate with local officials and stakeholders?
- Comments:

_____	x .10	=	_____
Rating	Weight		Score

**7. Contract Administration.** Did the Designer:

- Manager and administer sub-consultant work well?
- Manager and administer vendor work well?
- Meet DBE goals and submit proper paperwork to track DBE compliance?
- Provide adequate support during Bid and Award?
- Meet deadlines?
- Comments:

_____	x .10	=	_____
Rating	Weight		Score

**Total Rating:**

_____
-------

**Total Score**
**Remarks (include additional sheets as necessary):**

--

**Overall Comments:**

--

### SAMPLE FORM 5 DESIGNER EVALUATION FORM FOR CONSTRUCTION PHASE SERVICES

Design Consultant:	
Date Completed:	
Project Title:	
Project No.:	
Contracting Agency:	
Project Manager:	
General Contractor:	
Signature Public Agency Official:	

**Performance Rating Scale:**

Poor	Fair	Good	Excellent
1	2	3	4

**1. Quality of Contract Documents.**

- Were the code requirements met and well documented?
- Were there a limited number of change orders as a result of the construction documents?
- Was the information systematic, logical, and easy to read as interpreted by the GC and RE?
- Were the contract documents complete and clear with a limited number of requests for clarifications?
- Comments:

_____ x .25 = _____
Rating    Weight    Score

**2. Contract Administration.** Did the Designer:

- Provide adequate support during Bid and Award?
- Attend and adequately lead all of the job meetings?
- Provide adequate and complete review of requisitions?
- Develop adequate punch lists and facilitate project closeout?
- Review the contractor submittals thoroughly and in a timely manner?
- Comments:

_____ x .20 = _____
Rating    Weight    Score

**3. Communication Skills.**

- Was the Designer's written communication effective and informative?
- Was the Designer's technical capacity in terms of electronic technology and information management adequate for the needs of the project?
- Did the Designer keep the owner informed of progress?
- Did the Designer effectively communicate with local officials and the contractor?
- Comments:

_____ x .15 = _____
Rating    Weight    Score

**4. Problem Resolution.** Did the Designer:

- Provide solutions that were creative and appropriate in a timely manner?
- Suggest solutions that were cost-effective?
- Comments:

_____	x .10 =	_____
Rating	Weight	Score

**5. Evaluation and Negotiation of Change Orders.** Did the Designer:

- Prepare requests that clearly defined the scope changes?
- Thoroughly assess the contractor's proposed cost and requested time?
- Provide a thorough analysis and explanation for the change order?
- Comments:

_____	x .20 =	_____
Rating	Weight	Score

**6. Support of the RE or Clerk of the Works.**

- Did the Designer provide direction to the RE/CW and work cooperatively with each to oversee construction?
- Did the Designer give the RE/CW adequate resources and information to perform their job?
- Did the Designer provide the RE/CW with technical resources as needed to perform their work?
- Comments:

_____	x .10 =	_____
Rating	Weight	Score

**Total Rating:****Total Score****Remarks (include additional sheets as necessary):**

--

**Overall Comments:**

--



## SAMPLE FORM 6 CONTRACTOR EVALUATION FORM

### Part 1 – General Project Information

Date of Evaluation:	
Evaluator's Name:	
Evaluator's Position/Title:	
Agency/Firm:	
Evaluator's Telephone Number:	
Name of Contractor:	
Project Title:	
Initial Bid Amount:	
Total Contract Cost with Change Orders:	
Contract Start/End Dates:	
Project Location:	
Scope of Work:	

*Important!! Please check if this is an Interim Report (50% complete) or a Final Evaluation (at least 99% complete)*

### Part 2 – Evaluation Questionnaire

Please rate the contractor's performance in each of the following areas on the Ratings Summary Table on page 3 of this form. If you rate the contractor below Satisfactory in any area, please provide more details to explain the rating assigned.

1. **Quality of Workmanship (0-28 points).** Please rate the quality of this contractor's completed work. Were there quality-related or workmanship problems? If so, provide specific examples.
2. **Project Management.**
  - a) **Schedule (0-13 points).** Please rate the contractor's ability to adhere to contract schedules. Did the contractor meet the contract schedule or the schedule as revised by approved change orders? If not, was the delay attributable to this contractor? If so, provide specific examples.
  - b) **Subcontractor Management (0-13 points).** Please rate the contractor's ability, effort and success in managing and coordinating subcontractors (if no subcontractors, rate this contractor's overall project management here). Was the contractor able to effectively resolve problems? If not, provide specific examples.
  - c) **Safety and Housekeeping Procedures (0-9 points).** Please rate the contractor's safety and housekeeping procedures on this project. Were there any OSHA violations or serious safety accidents? If so, provide specific examples.

- d) Change Orders (0-9 points).** Please rate the contractor's reasonableness on claims, change orders or extras? Was the contractor's price on change orders and extras reasonable? If not, provide specific examples.
- e) Working Relationships (0-7 points).** Please rate the contractor's working relationships with other parties (i.e., owner, designer, subcontractors, etc.). Did this contractor relate to other parties in a professional manner? If not, give specific examples.
- f) Paperwork Processing (0-7 points).** Please rate the contractor's ability to complete and submit required project paperwork (i.e., submittals, drawings, requisitions, payrolls, workforce reports, etc.). Was it submitted promptly and in proper form? If not, provide specific examples.
- 3. On-Site Supervisory Personnel Rating.**
- a) General Performance (0-14 points).** Please rate the general performance of this contractor's on-site supervisory personnel. Did the superintendent(s) have the knowledge, skills and experience to run a project of this size and scope? If not, provide specific examples.

### **Part 3 – Legal and Administrative Proceedings**

Are you aware of any legal or administrative proceedings, invoked bonds, assessed damages, demands for direct payment, payment bond claims, contract failures, contract terminations, or penalties involving the contractor on this contract?

### **Part 4 – Numerical Rating**

Use the table on the following page to rate the contractor's performance on this project. In assigning the Numerical Rating, please note the following:

1. You are not restricted to using the numerical values shown and may score in between the numbers shown.
2. A total Numerical Rating of 70 is required for a passing grade.
3. If you rate the contractor below satisfactory in any area, you must provide written comments in Section II to explain the rating(s) assigned.

**RATINGS SUMMARY TABLE****Contractor's Name:**

	Unsatisfactory	Below Average		Average		Above Average		Evaluator Rating
		Poor	Deficient	Satisfactory (Passing)	Good	Very Good	Excellent	
1. Quality of Work	0	10	16	22	24	26	28	
2. Project Management								
a) Scheduling	0	4	8	10	11	12	13	
b) Subcontractor Management	0	4	8	10	11	12	13	
c) Safety and Housekeeping	0	3	4	6	7	8	9	
d) Change Orders	0	3	4	6	7	8	9	
e) Working Relationships	0	2	3	4	5	6	7	
f) Paperwork Processing	0	2	3	4	5	6	7	
						Subtotal Item 2		
3. Supervisory Personnel – General Performance	0	2	4	8	10	12	14	
						Subtotal Item 3		
						<b>Total Numerical Rating</b>		

**Part 5 – Evaluator Certification**

I certify that the information in this evaluation represents a true analysis of this contractor's performance record on this contract. (A copy of this completed evaluation form must be mailed directly to the contractor.)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Part 6 – Additional Comments**

--

## SAMPLE FORM 7

### INTERNAL STAKEHOLDER PROJECT EVALUATION FORM

To: \_\_\_\_\_  
 From: \_\_\_\_\_ (Director of Technical Department)  
 Date: \_\_\_\_\_  
 Subject: PROJECT EVALUATION  
         Project No.: \_\_\_\_\_  
         Contract Title \_\_\_\_\_  
         Contract Description: \_\_\_\_\_

In order to evaluate the performance of the Technical Department on this project, please take a few minutes to fill out this evaluation form. Please return the completed form to the Director of the Technical Department. Thank you.

#### Name of the Department Director for whom the project was done:

Director:	
Department:	

#### PROJECT MANAGEMENT

Category	Poor	Fair	Good	Excellent
1. Scope Management was:				
2. Budget Management was				
3. Schedule Management was:				
4. Internal communications between your department and the Technical Department were:				

#### Comments:

--

#### DESIGN

Category	Poor	Fair	Good	Excellent
1. Agency's relationship with the designer was:				
2. Agency's communications with the Designer were:				
3. The final design documents were:				

#### Comments:

--

#### CONSTRUCTION

Category	Poor	Fair	Good	Excellent
1. Agency's relationship with the Contractor was:				
2. Agency's communications with the Contractor were:				
3. Construction coordination was:				
4. Operations coordination was:				
5. The final product is:				

#### Comments:

--

<b>Evaluator:</b>	<b>Date:</b>
-------------------	--------------

cc: Technical Department Project Manager \_\_\_\_\_  
 Secretary Responsible for Records



*Abbreviations and acronyms used without definitions in TRB publications:*

AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI-NA	Airports Council International-North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	Air Transport Association
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HMCRP	Hazardous Materials Cooperative Research Program
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
PHMSA	Pipeline and Hazardous Materials Safety Administration
RITA	Research and Innovative Technology Administration
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation



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